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LOYOLA UNIVERSITY CHICAGO

A CASE STUDY OF A MIXED METHODS STUDY ENGAGED IN INTEGRATED
DATA ANALYSIS

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN RESEARCH METHODOLOGY

BY

DANIELA MARIE SCHIAZZA

CHICAGO, IL

AUGUST 2013

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ACKNOWLEDGEMENTS

Many people have supported me through my academic journey. Leanne Kallemeyn, my advisor and mentor, who took me under her wing with grace and patience. She saw me through many trials and tribulations – both academically and personally. To her, I will always be indebted. Ann Marie Ryan, whose inquisitive nature and thoughtful insights greatly inspire how I approach my work. Crystal Johnson and Julie Peters, whose collaboration and support were a great source of comfort to me. Dave Ensminger, who met me at Starbucks, listened to my frustrations, and helped me constructively think about my work. Carrie Livingston, a fellow graduate student and friend, who was more than willing to share her experiences and provide me with much needed confidence boosts. My parents, Silvio and Eneida, for all their support.

And last (but never the least and always the most important) – Jonathan. You are the first person in my life, who believed in me – much more than I believe in myself. Your unwavering faith inspires me to dream big in ways I never thought I would, or could.

To Jonathan

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ABSTRACT

The nascent field of mixed methods research has yet to develop a cohesive framework of guidelines and procedures for mixed methods data analysis (Greene, 2008). To support the field's development of analytical frameworks, this case study reflects on the development and implementation of a mixed methods study engaged in integrated data analysis. The purpose of this study is to describe how inquiry and methodological components influence integrated data analysis decisions, and to describe the processes and outcomes of engaging in integrated data analysis. The sample for this case study is a mixed methods study that was developed within the context of a program evaluation of the U.S. Department of Education Teaching American History grant, the American Dreams Project. This study suggests that mixed methods researchers should consider how qualitative and quantitative methodologies influence integrated data analysis approaches, embrace the generative possibilities of dissonance between qualitative and quantitative results, and engage in iterative, inquiry oriented analyses of qualitative and quantitative data that respect the multiple perspectives, or mental models, of the researchers involved in the study.

CHAPTER ONE

INTRODUCTION

Mixed methods research is often thought of as a research practice that uses both quantitative and qualitative methods within a single study. Although the utilization of both methods in a study is not a recent development in the social and behavioral sciences (Teddle & Tashakkori, 2003), the development of a theoretical framework for mixed methods research is a more recent development. Current scholarly discussions about mixed methods research have led some researchers to declare mixed methods research as the “third methodological movement” (Teddle & Tashakkori, 2003, p.5) and as a viable research paradigm in its own right (Johnson & Onweugbuzie, 2004). While the social science field appears to have accepted the idea that mixed methods research is, or at least has the potential to be, a distinct methodology apart from quantitative and qualitative methodologies (Greene, 2008), the field of mixed methods has been bombarded with different ideas and diverse views about what it is and should be. The field has been even described as “entering its ‘adolescence’” (Teddle & Tashakkori, 2003, p.3). This diversity of views has led to several unresolved issues about mixed methods research, which prominent mixed methods scholars Charles Teddle and Abbas Tashakkori have summarized. These include:

- The nomenclature and basic definitions used in mixed methods research;
- The utility of mixed methods research (that is, why it is used);

- The paradigmatic foundations for mixed methods research
- Design issues in mixed methods research;
- Issues in drawing inferences in mixed methods research; and
- The logistics of conducting mixed methods research (Teddle & Tashakkori, 2003, p.4)

This list demonstrates the lack of consensus in the field about issues that are fundamental to establishing a distinct research methodology; for example, philosophical or paradigm assumptions, methodological issues, and so on (Greene, 2008). Because of this lack of consensus, the simple question “What is mixed methods research?” has no simple answers.

The Lack of Integration in Mixed Methods Studies

The lack of a cohesive conceptual framework for mixed methods research can make it difficult for scholars who want to integrate quantitative and qualitative methods in their studies, especially if their aim is to integrate quantitative and qualitative results during data analysis. To date, the mixed methods methodological literature has paid little attention on how to analyze and interpret results in mixed methods studies (Bryman, 2007), neither has this literature produced a cohesive set of guidelines of specific strategies and procedures for mixed methods data analysis (Greene, 2008). This dearth of literature has prompted prominent mixed methods scholars to advocate for more investigation into the ways in which qualitative and quantitative data can be integrated into mixed methods studies (Bryman, 2007; Johnson, Onwuegbuzie, & Turner, 2007; Green, Caracelli, & Graham, 1989).

The lack of integration of mixed datasets during data analysis is not only absent from the methodological literature, but also from actual practice in the social sciences. The content analyses conducted by Bryman (2006), Greene et al. (1989), and Niglas (2004) of mixed methods studies across a variety of disciplines found a lack of integration of qualitative and quantitative data during data analysis and interpretation stages. Greene and colleagues' (1989) content analysis of 57 mixed methods evaluation studies found that the majority either did not report how they conducted their data analysis ($n = 9$) or kept both analyses and interpretations of quantitative and qualitative data separate ($n = 25$). When mixed data types were integrated, it was less often during analysis ($n = 5$) and more often during interpretation ($n = 18$). Reflecting on these results in subsequent work, other scholars have noted, "The paucity of instances of meaningful integration of qualitative and quantitative data at the analysis stage was perplexing given the intentional mixed-method design of these studies" (Caracelli & Greene, 1993, p.196).

Niglas (2004) conducted a content analysis of 145 mixed methods studies from the field of education, finding similar results to those of Greene et al. (1989). This analysis found that substantial integration of qualitative and quantitative data during analysis was rare, with Niglas explaining, "This deficiency comes to light even more strongly in the finding that there is often a lack of information about data analysis or procedures" (2004, p. 24). Niglas found integration of mixed data types during the interpretation stage to be far more common than during the analysis stage.

Bryman (2006) conducted a content analysis of 232 mixed methods studies across five disciplines: sociology; social psychology; human, social, and cultural geography;

management; and organizational behavior. Although Bryman's content analysis did not focus on issues of integration, his reflections provides additional evidence that integrated data analysis does not appear to be regularly practiced across the social sciences in general. Bryman (2007) observed that many of the authors of these studies explicitly indicated the collection of qualitative and quantitative data, but tended to report results from one type of data only or presented qualitative and quantitative results separately "so that there was more or less no integration at all" (p.10).

Barriers to Integration in Mixed Methods Studies

Bryman (2007) interviewed 20 U.K.-based mixed methods researchers across the five disciplines to understand the reasons for the lack of integration. These interviewees acknowledged the challenge of integrating quantitative and qualitative data during analysis, interpretation, and presentation of results, describing these challenges as a "cause of concern both in their own work and sometimes that of others" (p. 10). These interviews revealed different barriers to the integration of qualitative and quantitative data in mixed methods research, which include the lack of both exemplars and of integrated mixed methods design. The work of Bryman and other scholars also suggest an insufficient understanding of the reasons behind conducting mixed methods studies and of developing mixed methods research questions as a possible barrier to integrated data analysis.

The Lack of Exemplars

The lack of exemplars can be seen in Bryman's study. Nearly all of the 20 interviewees had difficulty specifying an exemplar study that integrated qualitative and

quantitative findings. As one interviewee explained, “It’s hard to think of it...which shows, I think, how little mixed methods are put into practice effectively because if they were being put into practice effectively, then I should be able to reel off two or three” (Bryman 2007, p. 19).

The inability to easily nominate an exemplar points to the dearth of integration in mixed methods studies, leaving researchers without examples of best practices to inform their own practice (Bryman, 2007). In the absence of both methodological literature and practical examples, mixed methods scholars enter fairly uncharted territory of integrated mixed methods data analysis.

The Lack of Integrated Mixed Methods Designs

The interviews also revealed that mixed methods studies might not be designed to facilitate the integration of qualitative and quantitative findings (Bryman, 2007). A mixed methods study designed with either the qualitative or quantitative component as its major focus does not provide the necessary foundation to integrate results and findings because “the overall design was not conceptualized in a sufficiently integrated way” (p. 14). As one interviewee explained, “If you start from a quantitative position, or methodology, it’s actually very difficult to then add the qualitative in” (p. 14). Thus, it is plausible that designing a mixed methods study with little thought of integrating qualitative and quantitative methods means there is no foundation to facilitate integrated data analysis.

Insufficient Attention to Research Purposes

This insufficient attention or inadequate understanding of the purpose(s) for conducting mixed methods research has been discussed by scholars. As Teddlie and

Tashakkori (2003) pointed out, the utility or purpose of mixing methods is an area of research that needs developing. The content analyses conducted by Bryman (2006) on 232 mixed methods studies categorized the reasons for undertaking these studies into 18 possible mixed methods purposes. The results of this analysis revealed the actual reasons why the studies' mixed methods did not align with their original purposes for mixing methods. For example, in 29 studies the stated rationale for mixing methods was for the purpose of triangulation, in which qualitative and quantitative methods are used to assess the degree of convergence of results across both methods. Further examination about the actual reasons these studies mixed methods revealed, however, that it was 80 studies that did so for the purposes of triangulation. In four out of the 232 studies, the stated rationale for conducting a mixed methods study was for the purpose of illustration, wherein qualitative data are collected to elaborate or enhance quantitative findings; however, further examination revealed that the true number was 53 studies. Bryman speculates this lack of alignment between the stated purpose of mixing methods and its actual practice may be because "rationales for using multistrategy research [may] not be thought through sufficiently" (2006, p. 10). This further suggests that this lack of alignment may be because the current methodological literature has not thoroughly discussed the reasons for conducting mixed methods research. Therefore, if researchers do not thoroughly consider and understand the purposes of mixing methods, then it may be difficult for them to conceive how integrated data analysis can be useful.

Insufficient Attention to Research Questions

Bryman (2007) also noted the absence of explicitly stated research questions in these 232 studies: “[T]he relative *infrequency* of specified research questions was striking” (p. 10). Only 10 studies explicitly discussed that the collection of qualitative and quantitative data was to address specifically stated research questions. Because mixed methods research questions should be logically related to mixed methods purposes (Greene, 2007; Onwuegbuzie & Leech, 2006), the absence of research questions in most of these 232 mixed methods studies is not surprising, given Bryman’s contention that these studies did not thoroughly consider their purposes for mixing methods. The paucity of explicitly stated research questions may also be related to the lack of attention the methodological literature has given to the development of mixed methods research questions (Onwuegbuzie & Leech, 2006), in particular to the development of integrated mixed methods research questions that incorporate both the quantitative and qualitative aspects of a study. Because research questions provide a study with its direction (Johnson & Christensen, 2004; Onwuegbuzie & Leech, 2006), it is possible that inadequately developed mixed methods research questions, in particular integrated mixed methods questions, might diminish the opportunity for integrated data analysis in mixed methods studies.

Studying the Development of an Exemplar of Integrated Mixed Methods Data Analysis

Currently, the field of mixed methods research calls for more work on integrated data analysis. To this end, this dissertation examines the development of a study engaged

in integrated data analysis in order to provide the field of mixed methods study with an exemplar study of integrated data analysis, and provide mixed methods researchers an account of the development of this study because as Onwuegbuzie and Teddlie (2003) assert, “The mixed methods paradigm is still evolving, [and] the onus is on mixed methods researchers to provide detail procedural and interpretational information to their readers” (p. 362).

Because mixed methods data analysis decisions are rooted in a study’s research purposes, research questions (Greene, 2007; Onwuegbuzie & Teddlie, 2003), and design (Creswell & Plano Clark, 2007), examining how these key inquiry and methodological components can provide the field of mixed methods insights on how they influence data analysis. The lack of any cohesive guidelines for mixed methods data analysis (Greene, 2008) calls for more study on the actual processes and outcomes of engaging in integrated data analysis. To address these major research issues, this dissertation, which aims to develop and study an exemplar mixed methods study engaged in integrated data analysis, addressed the following research questions:

- In what ways and to what extent do the substantive purposes, research questions, mixed methods purposes, and design of a mixed methods study inform its integrated data analysis?
- In what ways and to what extent do the specific integrative analysis techniques utilized in a mixed methods study produce meaningful results that addressed this exemplar’s research questions?

- In what ways and to what extent do researchers participating in the design and implementation of a mixed methods study find that its integrated data analysis helped them obtain a more comprehensive understanding of the phenomenon studied?

To address the aforementioned research questions, this dissertation utilizes case study methodology to describe the development of this exemplar study. A more detailed discussion of this dissertation's methodology is provided in Chapter Three. Because this case study examines the development of a mixed methods study, it is important to understand what elements of mixed methods research inform the development of this study. The exemplar study is guided by a definition of mixed methods research that requires the use of both qualitative and quantitative methods. The use of both methods is guided by a mixed methods way of thinking, which is a mixed methods paradigm stance developed by Greene (2007). This paradigm stance promotes the mixing of methods in a dialogic, iterative, and interactive manner, making mixed methods research inherently integrative in nature. The aim of this integration is to produce a better and more complete understanding of the social phenomenon under study as compared to what might have been produced by either method alone. A more detailed discussion of this definition and mixed methods paradigm stance is provided in Chapter Two.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this dissertation is to reflect on an exemplar mixed methods study engaged in integrated data analysis. In order to do this, it is necessary to understand the components of a mixed methods study that influence analysis decisions, including a study's purposes, research questions, design (Creswell & Plano Clark, 2007; Greene, 2007; Onwuegbuzie & Teddlie, 2003), and the mixed methods paradigm position a researcher adopts (Greene, 2007). In addition, it is also helpful to understand the overarching framework, or definition of mixed methods research, that informs the development of a particular mixed methods study, which is the purpose of this literature review. The review discusses the different components of a mixed methods study that influence, or are directly related to, mixed methods data analysis, including: paradigms in mixed methods research; purposes for conducting mixed methods research; and mixed methods research questions, designs, and data analysis techniques. In addition to discussing these various components, rationales for the specific approaches this exemplar study used to develop its mixed methods study is discussed.

This literature review primarily focuses on theoretical literature rather than empirical literature to help establish the framework for this study. The current lack of literature on cohesive conceptual framework for mixed methods research has left scholars

without guidelines to inform their own empirical research. Thus, relying on empirical studies will not provide all the relevant and necessary information to help inform the rationale and basis for this exemplar study. Although empirical studies may not be the richest source of information for this particular mixed methods study, some empirical work is highlighted to help elucidate different aspects of mixed methods research.

Defining Mixed Methods Research

The field of mixed methods has been described as “entering into its adolescence” (Teddle & Tashakkori, 2003, p. 3). Currently the field is contending with several unresolved issues, many of which are highlighted in this literature review. Given the lack of consensus in the field on a variety of issues, it is not surprising that no commonly agreed upon definition of mixed methods research exists. To better understand how the field currently defines mixed methods research, Johnson, Onwuegbuzie, and Turner interviewed 19 “leaders in the field” (2007, p. 19) to find out how they each define mixed methods research. The definitions of these scholars can be categorized into five different themes or dimensions: (1) what is mixed methods research, (2) where does the mixing occur, (3) the breadth of mixed methods research, (4) why conduct mixed methods research, and (5) orientation of mixed methods research (Johnson et al. 2007). Each of these five themes is summarized below.

What is Mixed Methods Research?

This theme focuses on what aspects of quantitative and qualitative research are combined in mixed methods research studies. The majority of these 19 scholars agree that quantitative research and qualitative research is what is mixed. One scholar contended

that mixed methods research is a larger concept that includes the mixing of methods that belong to or are traditional to a particular paradigm. For example, an experimental design that uses a self-report survey would also be considered a mixed methods study (Johnson et al., 2007).

Where Does the Mixing Occur?

Few scholars appeared to uniformly agree on where in the research process the mixing of quantitative and qualitative research should occur. Of the 19 scholars, two contended that the mixing occurs at the data collection stage only, while three said that the mixing occurs in both the data collection and data analysis stages. Four explicitly stated that mixing occurs across all stages of the research process; however, Johnson et al. (2007) noted that all the scholars indirectly mentioned this level of mixing.

The Breadth of Mixed Research

This theme shares similarities with “where does the mixing occur” in that it takes into account where in the research process the mixing occurs; however, breadth extends to include the range of what is considered mixed methods research. The definitions offered by these leaders reveal a continuum of ideas; at one end, the definition of mixed methods research involves the collection of only quantitative and qualitative data, while at the other end, mixed methods research involves the mixing of different methodological viewpoints (e.g., paradigms) as well as the language/discourse associated with these different viewpoints. This latter part of the continuum makes for broad definition of mixed methods research because it does not view mixed methods as the combining of quantitative and qualitative methods per se, but of methodological viewpoints and

associated language/discourse (Johnson et al., 2007). For example, a study that collects only qualitative data but then analyzes it and communicates results from a quantitative viewpoint would be considered a mixed methods study.

Why Conduct Mixed Research?

This theme incorporates the reason for conducting mixed methods research. Many definitions considered that the purpose of mixed methods research was to provide a better understanding of and an enhanced description of a phenomenon, while others stated mixed methods research should be conducted for the purpose of triangulation. For some, both the enhanced description and understanding of a phenomenon and triangulation were cited as reasons to conduct mixed methods research (Johnson et al., 2007).

The Orientation of Mixed Research

This theme focuses on what motivates the development of a mixed methods study. Most leaders' definitions were that the research questions must drive the need for mixed methods research. One definition, though, was that mixed methods research is driven by the researchers' desire to conduct research that is "emancipatory, anti-discriminatory, and participatory" (p. 123). Other definitions advocated for a more middle-of-the-road position wherein both the research questions and larger conceptual and philosophical frameworks drive the research.

The Definition of Mixed Methods Research Informing this Exemplar Study

The definition of mixed methods research that informed the development of this study incorporated both the major themes described by Johnson et al. (2007) and the mixed methods paradigm. The definition draws upon the work of Johnson et al. because

it incorporates the viewpoints of numerous mixed methods scholars. Because the field of mixed methods research has not settled upon a single paradigm to guide its research, it is important to explicitly discuss what paradigm stance informs this definition. (The section “Paradigm and Mixed Methods Research” discusses paradigm issues in more detail). The purpose of this definition is not to provide the field with another way to conceptualize mixed methods research, but to offer readers a transparent understanding of the overall conceptual framework (definition) that influenced the development of this exemplar mixed methods study.

Definition of mixed methods research. Mixed methods research is a type of research in which, within a single study, or more researchers use *both* qualitative and quantitative methods and, by extension, these methods’ respective paradigm perspectives. The purpose of using both methods is to produce a “better understanding” of a social phenomenon. This understanding is produced by combining quantitative and qualitative research for the mixed methods purposes of triangulation, complementarity, development, initiation, or expansion. (A more detailed description of these purposes is provided on pages 16 through 24 in subsequent sections of this literature review.)

The use of qualitative and quantitative methods within a study is guided by a mixed methods way of thinking (Greene, 2007), which is a mixed methods paradigmatic approach that invites multiple ways of knowing into a single study. These ways of knowing are represented by qualitative and quantitative research and their associated paradigm characteristics (e.g., constructivism and post-positivism), as well as the mental models of the researchers. A mixed methods way of thinking emphasizes a respectful

dialogue between different perspectives, understanding that each offers only a partial understanding of the social world. Within this framework, qualitative and quantitative methods, paradigm characteristics, and mental models are mixed in a dialogic, iterative, and interactive manner. (A more detailed discussion of mixed methods way of thinking is provided in the section “Paradigms and Mixed Methods Research”).

The orientation of mixed methods research emerges from both the paradigm and the need to address specific research questions. This approach to mixed methods research privileges the equality of different perspectives by mixing, or integrating, qualitative and quantitative methods and perspectives throughout the research process. This interactive and dialogic mixing of methods and perspectives must be done not only to engage in dialogic thinking but also to ensure the study appropriately addresses its research questions.

Paradigms and Mixed Methods Research

The field has yet to come to a consensus about what will inform the paradigmatic foundations of mixed methods research (Teddle & Tashakkori, 2003). Currently, the role of paradigms in mixed methods research may be categorized into six different positions: the purist, complementary strengths, a-paradigmatic, substantive theory, dialectic, and alternative paradigm (Caracelli & Greene, 1997; Greene, 2007; Teddle & Tashakkori, 2003). While all six of these represent unique perspectives about the role of paradigms in mixed methods research, the following section focuses on the dialectic position because: this paradigm position contends more comprehensive understandings of social phenomenon emerge when mixed methods researchers place equal importance on both

qualitative and quantitative research approaches, and this paradigm position is closely related to the paradigmatic approach of this exemplar study – a mixed methods way of thinking.

Dialectical Paradigm Position

The dialectical paradigm position has been championed by Jennifer C. Green and Valerie J. Carcelli (Caracelli & Greene, 1997; Greene, 2007). This position views a paradigm as offering only a partial understanding of the social world, and thus requires the use of multiple paradigms in order to reach a more collective understanding (Greene & Carcelli, 2003). This position does not view the differences between paradigms as incompatible and irreconcilable, nor does it contend that researchers must choose one paradigm over another. Rather, the juxtaposition of the differences between paradigms “offer[s] the possibility of coordination, integration, and synthesis” through a dialogical interplay of differences (Caracelli, & Greene 1997, p. 12–13).

Greene (2005, 2007, and 2008) has broadened the tenets of the dialectical paradigm position into a larger conceptual framework for mixed methods research. This framework rests on the assumption there are multiple, legitimate ways of knowing, which represent partial understandings of social phenomenon. These multiple ways of knowing make up researchers’ mental models, which encompass their ontological and epistemological assumptions about the social world, as well as their personal perspectives, values, and experiences. Mental models are the framework, or lens, through which researchers view their research endeavors. Green (2007) contends that mental models can be mixed in the same study, explaining that:

There are no logical or inherent reasons why different mental models cannot be engaged within the same inquiry study. This is so even though different mental models are indeed connected to different methodological traditions. But these connections are loose, not tight; they arise because different methodologies are better matched to different mental models, rather than because methods and paradigms are intrinsically bound one to another (p. 67).

Thus, it is mental models, not paradigms, which are mixed in mixed methods studies. In any particular research study, the choice to use particular methods are not necessarily dictated by abstract paradigmatic assumptions, but is a negotiation between the practical research issues of the study and the mental model of a researcher, or team of researchers. According to Greene (2007) multiple mental models with conflicting perspectives can be mixed if these conflicts are “engaged through respectful dialogue” (p. 67).

Like a dialectical position, a mixed methods way of thinking invites the use of multiple mental models for the purpose of dialogically juxtaposing potential differences and conflicts to cultivate a collective understanding of social phenomenon. This approach to mixed methods does not view corroboration and convergence of multiple methods as the primary benefit of mixed methods research because dissonance and conflict are equally as valuable: the dialogically interplay of differences offers the potential to produce generative insights. Because dissonance and conflict may arise when juxtaposing different ways of knowing, the mixed methods way of thinking encourages researchers to have a reflective stance in their work in order to consider how these differences influence their research (Greene 2007).

The Mixed Methods Paradigm Position for This Exemplar Study

This dissertation adopts Greene's mixed methods way of thinking as its conceptual framework. It focuses on the interactive, back-and-forth conversation among mental models that encourages and facilitates the integration of data analysis across all data types. A mixed methods way of thinking values the perspectives of both qualitative and quantitative approaches and views their potential dissonance as opportunities to produce generative insights. Critics of mixed methods research have pointed to organizations whose definition of mixed methods marginalizes qualitative, interpretive approaches. For example, the National Research Council promotes mixed-method studies that emphasize quantitative experimental approaches and deemphasize qualitative, interpretive research approaches (Creswell, 2011). A mixed methods way of thinking helps to counter the potential marginalization of qualitative research by respecting the dialogical interplay of both research approaches, thereby giving qualitative and quantitative approaches both methodological and political value.

It uses the expansive concept of a mental model to emphasize that a researcher's paradigmatic assumptions, personal experiences, values, and perspectives all influence research endeavors. Since this exemplar study involved multiple stakeholders with different ideas and beliefs, it was useful to use a broader concept of a mental model rather than a narrower concept of a paradigm to better understand what and how these mental models were represented methodologically and analytically in this study.

Purposes for Conducting Mixing Methods Research

While some scholars contemplate the philosophical aspects of mixed methods research, others focus on its practical aspects, including understanding the purposes for conducting a mixed methods study. Knowing the purpose is important in order to determine whether a mixed methods study is a better choice than a mono-method study. So, what are some purposes for mixing methods? In order to address this question, it is important to differentiate between the substantive and mixed methods purposes of a study.

The substantive purpose of a study is often referred to as simply the research objective. Johnson and Christensen (2004) defined this as, “A statement of the intent or objective of the study” (p. 60). Simply put, the research purpose states the reason(s) why a researcher is conducting a study by explaining its rationale, aim, or objective.

Regardless of whether a researcher engages in mono-method or mixed-method research, there needs to be an understanding of the substantive purpose for carrying out the study.

Newman, Ridenour, Newman, and DeMarco (2003) describe nine major substantive purposes for social science research. These purposes and their functions are listed in Table 1.

Table 1. List of Substantive Purposes and Their Function in Undertaking Social Science Research

Substantive Purpose	Function
1. Prediction	Build general laws
2. Add to the knowledge base	Confirm findings, replicate others' work, reinterpret previously collected data, clarify structural and ideological connections between social processes, strengthen

	knowledge base
3. Have a personal, social, institutional, or organizational impact	Deconstruct/reconstruct power structures, reconcile discrepancies, refute claims, set priorities, resist authority, influence change, promote change or questioning, improve practice, change structures, set policy
4. Measure change	Measure consequences of practice, test treatment effects, measure outcomes
5. Understand complex phenomenon	Understand phenomenon, culture, change, or people
6. Test new ideas	Test: innovations, hypotheses, new ideas, new solutions
7. Generate new ideas	Explore phenomena, generate hypotheses or theory, uncover relationships or culture, reveal culture
8. Inform constituencies	Inform or enlighten the public, heighten awareness or public relations, hear from those affected by treatment or program, describe the present, comply with authority.
9. Examine the past	Interpret/reinterpret the past, acknowledge past misunderstandings, reexamine tacit understandings, examine social and historical origins of current social problems

Note: Adapted from “A Typology of Research Purposes and Its Relationship to Mixed Methods,” by I. Newman, C. S. Ridenour, C. Newman, & G. M. P. DeMarco, Jr., in A. Tashakkori and C. Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioral Research* (pp. 167–188).

On the one hand, the substantive research purposes, and the research questions that emerge from these purposes, represent the substantive heart of a study (Greene, 2007). The purposes for mixing methods, on the other hand, “are *about methodology*, [and] it is critical to think about identifying and selecting the reason for mixing methods (or mixed methods purposes) *in service* to the broader substantive purpose and questions being pursued in the study” (Greene, 2007, p. 97). The objective of selecting particular types of mixed methods purposes is to specifically address the question, “What form of

“better understanding” will service the substantive purpose and questions of the overall study the best” (p. 97).

Scholars have developed different typologies of mixed methods purposes. Greene et al. (1989) conducted a content analysis of 57 mixed methods evaluation studies that led to the formulation of five major purposes of mixed methods research: triangulation, complementarity, development, initiation, and expansion. Niglas (2004) utilized Greene’s et al. (1989) typology in her content analysis of 145 mixed methods studies from the field of education, but expanded the original five purposes to 18. Collins, Onwuegbuzie, and Sutton (2006) conducted a content analysis of 494 studies from the fields of psychology, sociology, social services, education, business, nursing, and allied health. This resulted in the formulation of 65 mixed methods purposes, which were then categorized under one of four major rationales for mixing methods: participant enrichment, instrument fidelity, treatment integrity, and significance enhancement.

Although all of the aforementioned scholars provide valuable insights into the different ways to conceptualize mixed methods purposes, the following section outlines the mixed methods purposes discussed by Greene et al. (1989) and Greene (2007), and focuses specifically on this typology of mixed methods purposes because mixed methods researchers have recognized its efficacy. Although Niglas expanded Greene et al.’s typology to 18 purposes, she commented, “The analysis confirmed the suitability of the conceptualisation of ‘mixed-methods purposes’ proposed by Greene et al., (1989)” (Niglas 2004, p. 22). Onwuegbuzie and colleagues, who developed their own typology of purposes (see Collins et al., 2006) also praised the suitability of Greene’s framework.

“[W]e recommend that researchers use Greene, Caracelli, and Graham’s (1989) framework” (Onwuegbuzie & Leech, 2006, p. 480). Each of the five purposes in this framework is described in the following subsections.

Mixing Methods for the Purpose of Triangulation

Studies that mix methods for the purpose of triangulation aim to find convergence across results from multiple methods in order to increase the validity of inferences by using methods with offsetting weaknesses. In triangulation studies, different methods are used to measure the same phenomenon (Greene, 2007), with methods implemented separately to preserve their integrity and so the results do not influence each other. The analysis of qualitative and quantitative data occurs separately, but during the interpretation stage results across all data sources are examined for evidence of corroboration (Greene, 2007).

Take for example a program aimed at increasing science teachers’ use of inquiry-based pedagogical strategies. An evaluator can utilize multiple methods to assess teacher use of these strategies. The evaluator could utilize direct observation to quantitatively record teachers’ use of inquiry-based strategies and qualitative interviews to inquire about teachers’ use of these strategies. Both methods measure the same conceptualization of this program outcome, which allows researchers to analyze results across methods for evidence of corroboration and convergence.

Mixing Methods for the Purposes of Complementarity

Studies that mix methods for the purposes of complementarity aim to create a more comprehensive understanding of a complex phenomenon by using a mix of

methods to assess different facets of a particular phenomenon (Greene, 2007). By examining the different facets of a phenomenon with a mix of methods, a greater comprehensive understanding may emerge as the results from one method enhance, elaborate, clarify, or complement the results of the other method (Greene et al., 1989).

An example of a mixed methods study designed for the mixed methods purpose of complementarity was conducted by Waysman and Savaya (1997). The objective of this mixed methods study was to evaluate a nonprofit agency (SHATIL), which provided organizational consultation and support to other nonprofit organizations in Israel. The quantitative method consisted of a self-report questionnaire that assessed satisfaction levels among SHATIL clients. The qualitative method consisted of focus groups with the most satisfied and least satisfied clients. Here, the qualitative data complemented the quantitative data by providing information about the sources of satisfaction and dissatisfaction among clients.

Mixing Methods for the Purposes of Initiation

Similar to complementarity studies, studies conducted for the purpose of initiation also aim for greater comprehensive understanding of a phenomenon by using different methods to assess various aspects of the same phenomenon. Unlike in complementarity studies, though, initiation studies aim to use methods in such a way as to elicit dissonance and conflict. To help increase the likelihood of contrast and conflict, researchers use methods “that are significantly different from one another in stance, form, and perspective” (Greene, 2007, p. 103). For example, a researcher can implement a survey to produce generalized knowledge and then conduct case studies to create contextualized

understandings. The challenge comes in reconciling the different forms of knowledge that emerge from the two different types of methods. The active pursuit to understand dissonance and conflict makes initiation the most generative of all purposes in this typology and the most conducive to a mixed methods way of thinking (Greene, 2007); however, purposeful initiation is rare in practice (Greene et al., 1989).

Dissonance and conflict most often emerge during the course of a mixed methods study that was designed for purposes other than initiation. An example of a study where initiation emerged as a purpose is the one conducted by Sosulski and Lawrence (2008). Even though these researchers did not explicitly state a mixed methods purpose, it appears that triangulation was the original purpose for mixing methods. The primary objective of Sosulski and Lawrence's study was to analyze states' responses to the family structure and pregnancy prevention goals outlined in the 1996 welfare legislation. The researchers used qualitative case studies to obtain in-depth detail about state policy decisions and conducted quantitative analyses on existing data to obtain more generalized trends across the country. The juxtaposition of these mixed data did not result in corroboration, but rather in dissonance. This conflict prompted Sosulski and Lawrence to conduct additional analyses, which consequently produced a deeper, more complete understanding of the ways in which states responded to this particular welfare legislation.

Mixing Methods for the Purposes of Expansion

The mixed methods purposes of triangulation, complementarity, and initiation share one thing in common: they all aim to understand the *same* phenomenon. Studies that mix methods for the purpose of expansion aim to enlarge the range of inquiry by

using multiple methods to investigate *different* phenomenon of the issue under study.

Expansion is a common mixed methods purpose for program evaluation studies, with quantitative methods used to assess program outcomes and qualitative methods used to assess program implementation (Greene, 2007; Green et al., 1989).

Waysman and Savaya's program evaluation of SHATIL is an example of mixing methods for the purposes of expansion (1997). The different phenomenon these evaluators targeted were program outcomes and program processes. Outcomes variables included client satisfaction with SHATIL and SHATIL's contribution to clients' goal attainment. Process variables included the amount of services clients received and critical turning points in consultation process. To assess outcomes, the evaluators conducted interviews with SHATIL staff and focus groups with SHATIL clients. These qualitative data then served as the basis for the questionnaire Waysman and Savaya administered to SHATIL clients to assess key study outcomes. To assess process variables, Waysman and Savaya quantified the amount of services clients used by counting hours and then breaking down the amount of services received according to the type of service and type of client. To understand critical turning points in the consultation process, the evaluators used focus group discussions as well as open-ended questions included in a questionnaire.

Mixing Methods for the Purposes of Development

Studies that mix methods for the purpose of development aim to use the results of one method to inform the development of the other method. The results from the first method are used to develop the design of the second method by informing the

development of research questions, data collection instruments, sampling, and so on.

Since one method informs the development of the other, mixed methods studies conducted for the purpose of development implement methods sequentially; that means one method is implemented at a time (Greene, 2007).

The study conducted by Myers and Oetzel (2003) is an example of a mixed method study with the purpose of development. The objective of this study was to create an index to assess organizational assimilation of newcomers into organizational settings. To determine the dimensions of this index, Meyers and Oetzel conducted semi-structured interviews with individuals from several different types of organizations. The qualitative analysis of these interviews yielded six major themes, or dimensions, of organizational assimilation. Myers and Oetzel then developed 61 items related to the six dimensions to create the Organizational Assimilation Index. The investigators then confirmed the validity of these dimensions through a confirmatory factor analysis.

The Mixed Methods Purposes for this Exemplar Study

The mixed methods purpose most compatible with the mixed methods way of thinking is initiation, because it purposefully seeks to engage in difference. Complementarity and development also may align with a mixed methods way of thinking if the methods are implemented in an integrative way that promotes a back-and-forth dialog across methods and results (Greene, 2007). This exemplar study used a mix of methods for the purposes of development and complementarity, which aligns with a mixed methods way of thinking *if* the methods are sufficiently integrated within the study. Initiation also may be considered a mixed methods purpose of this study, as both

case studies and survey methods were used; however, the decisions to use these methods were for the purposes of complementarity, not initiation.

Research Questions in Mixed Methods Studies

Research questions are an important component of any study because they specify the issues to be addressed and provide the framework, giving the study direction and focus (Johnson & Christensen, 2004; Onwuegbuzie & Leech, 2006). Despite the important role research questions play in the development of a study, very little has been written about the nature of or the ways to develop research questions in mixed methods research (Onwuegbuzie & Leech, 2006). The following section summarizes what literature does exist on mixed methods research questions, focusing on two different aspects: the development of research questions for mixed methods studies, and the ways to present mixed methods research questions in mixed methods studies.

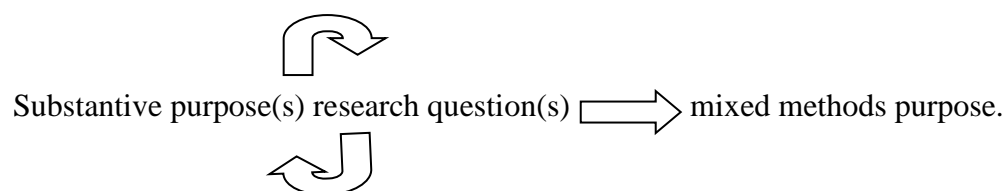
Developing Research Questions for Mixed Methods Studies

A study's substantive purpose, and the questions that emerge from this purpose, provides the substantive heart of a mixed methods study (Greene, 2007). Newman et al. (2003) advocated for the iterative development of research questions in light of a study's purpose in order to better understand the complexities of the phenomenon under study. The iterative process is not exclusive to the development of mixed methods research questions, but it may be particularly valuable to mixed methods researchers because, as Newman et al. (2003) explain:

The process entails first studying the research question and then refining the question at a deeper and more substantive and purposeful level, with a greater awareness of potential multiple purposes. The more complex the purposes, the more likely that mixed methods will be necessary (p. 186).

While this iterative process may be useful for mixed methods researchers, it has not been placed within the larger context of mixed methods research. In particular, this process does not take into account the mixed methods purposes as they relate to the research questions. As Greene (2007) emphasized, mixed methods purposes are more about methodology than about substantive issues; they are chosen because they best align or support the substantive purposes and questions of a particular study. To account for mixed methods purposes in the development of mixed methods research questions, I have combined the iterative framework advocated by Newman et al.'s (2003) and Greene's (2007) mixed methods purposes to create one approach to the development of mixed methods research questions, which is outlined in Figure 1.

Figure 1. Potential Approach to Develop Mixed Methods Research Questions



Onwuegbuzie and Leech (2006) provided another approach to the development of mixed methods research questions. The major difference between the former process and the process developed by Onwuegbuzie and Leech is that the latter contends that research questions are derived from mixed method, not substantive, purposes. Despite the differences between these approaches, they do share one similarity, namely, research questions logically relate to other aspects of the research study. This statement would also hold true of any mono-method study. The difference in mixed methods research is that the research questions are somehow logically related to the study's mixed methods

purpose, whether the research questions are derived from that purpose or whether the purpose is chosen in support of the research questions.

Ways in Which to Present Mixed Methods Research Questions

While very little has been written about how to present mixed methods research questions in mixed methods studies, John Creswell (2009) provided some guidelines on this issue by suggesting three approaches. The first is to provide only a mixed methods research question. The second is to provide both a quantitative and qualitative research question, followed by a mixed methods research question. For Creswell, this second approach is the ideal because it emphasizes the importance of both the quantitative and qualitative aspects of the study as well as their integration. The third approach is to provide qualitative and quantitative research questions but no mixed methods research question; this approach deemphasizes the integrative aspects of the study by focusing on only the individual quantitative and qualitative components of the study.

Two out of three approaches discussed by Creswell (2009) emphasize the inclusion of a mixed methods research question. He defined a mixed methods research question as one that “directly addresses the mixing of the quantitative and qualitative strands of the research” (2009, p. 138). Currently, there are two possible ways to write a mixed methods research question. The first is to describe the mix of methods or procedures in a study by emphasizing the nature of their integration. For example, this type of integrated mixed methods question could ask, “Does the qualitative data help explain results from the initial quantitative phase of the study?” (2009, p. 138). Even though Creswell discussed this approach in terms of procedures and methods, it can also

be used to highlight the mixed methods purpose of the study. In this example, the mixed methods question highlights the mixed methods purpose of complementarity.

The second approach is to describe the content or substantive focus of the study by either explicitly or implicitly stating how the quantitative and qualitative methods will assess the study's content (Creswell, 2009). For example, a mixed methods research question based on this approach could ask, "What is the relationship between middle school students' utilization of different literacy reading strategies and their perceptions of how these strategies help them to become better readers?" This question highlights the content of the study (that is, use and perceptions of literacy strategies) as well as the integrative task of the study (that is, explores the relationships between the quantitative and qualitative components).

This Dissertation's Approach to Mixed Methods Research Questions

A mixed methods way of thinking honors the juxtaposition of different ways of thinking in a mixed methods study. To this end, this study aimed to provide separate quantitative and qualitative questions in order to preserve and honor the different perspectives of each method. Because a mixed methods way of thinking also advocates for the dialectical juxtaposition of different perspectives, this dissertation provides a mixed methods research question that highlights both the substantive issue these questions address (the content) and the mixed methods purpose that supports the mixing of both perspectives in this study.

The approach to the development of these research questions incorporated the ideas of Greene (2007), Newman et al. (2003), and Onwuegbuzie and Leech (2006).

Newman et al.'s iterative approach to the development of research questions was used to develop a strong understanding of the complexities of the study. In the spirit of Greene (2007), a mixed methods purpose was selected in order to help support this study's research questions. Once selected, another round of iterative reflection between the research questions and mixed methods purposes would take place to determine if further refinement to the research questions, substantive purposes, or mixed methods purposes was needed. This iterative approach between research questions and mixed methods purposes was inspired, in part, from Onwuegbuzie and Leech's (2006) contention that research questions emerge from mixed methods purposes. Although the study's research questions may not emerge from the mixed methods purposes per se, this approach allows the opportunity to refine the research questions in light of the mixed methods purpose.

Research Designs in Mixed Methods Research

While the field has been dominated by discussions of design, it has yet to come to a consensus on a coherent framework of mixed methods designs. Teddlie and Tashakkori (2003), editors of the *Handbook of Mixed Methods in Social and Behavioral Research*, found approximately 40 different mixed methods design typologies in the literature. Given the expansive literature on mixed methods research designs, this discussion focuses only on Teddlie and Tashakkori (2006) and Maxwell and Loomis (2003) for two major reasons. The first is that both sets of scholars emphasize integrated designs in their frameworks, and the integration of methods aligns with a mixed methods way of thinking. The second is these scholars' emphasis on integrated designs reflects a larger trend in the field that recognizes a mixed methods study as one that integrates qualitative

and quantitative methods at some point during the course of the study (e.g., development of research purposes and research questions, design stage, analysis stage, or interpretation and inference stage) (Creswell & Plano Clark, 2007; Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2006).

Design Typology Created by Teddlie and Tashakkori

Charles Teddlie and Abbas Tashakkori have figured prominently in the conceptualization of mixed methods design over the past ten years. These scholars have introduced different iterations of their design typology, initially in their work, *Mixed Methodology: Combining the Qualitative and Quantitative Approaches* (1998), and then expanding on this initial conceptualization in the comprehensive *Handbook of Mixed Methods in Social and Behavioral Research* (2003). Teddlie and Tashakkori (2006) further enhanced their previous work in this latest typology, which represents a continuum of research designs that includes both monomethod and mixed-method designs. This typology is outlined in Table 2.

Table 2. The Design Typology of Teddlie and Tashakkori

Design	Monostrand Designs	Multistrand Designs
Monomethod	Cell One	Cell Two
Designs	Monomethod Monostrand Designs: (1) Traditional QUAN design (2) Traditional QUAL design	Monomethod Multistrand Designs: (1) Concurrent Monomethod a. QUAN+QUAN b. QUAL+QUAL (2) Sequential Monomethod a. QUAL → QUAN b. QUAN → QUAL
Mixed Methods	Cell Three	Cell Four
Designs	Quasi-Mixed Mono-Strand Designs:	A) Mixed Methods Multistrand Designs:

Monostrand Conversion Design	(1) Concurrent Mixed Designs
	(2) Sequential Mixed Designs
	(3) Conversion Mixed Designs
	(4) Fully Integrated Designs
	B) Quasi-Mixed Multi-Strand Designs: Designs Mixed at the Experiential Stage Only, include the Concurrent Quasi-Mixed Design

Note: Adapted from “A General Typology for Research Designs Featuring Mixed Methods, by Teddlie, C.B., & Tashakkori, A., *Research in School*, 13(1) (pp. 12–28).

Among all of the mixed method design types outlined in Teddlie and Tashakkori’s typology, fully integrated designs offer the best opportunity for integration because methods potentially can be integrated across all stages of the research process.

Teddlie and Tashakkori define the stages of the research process:

- Conceptualization, which includes the formation of research purposes and questions;
- Experiential, which includes decisions regarding methodology, data collection, and analysis; and
- Inferential, which includes inferences made from data analysis (e.g., explanations, conclusions).

In fully integrated designs, methods are implemented iteratively and interactively across all three stages of the research process. For example, during the conceptualization stage, the integrated development of research questions means that the development of quantitative research questions leads to the development of qualitative research questions, and vice versa. During the experiential stage, integrated analysis of both data types

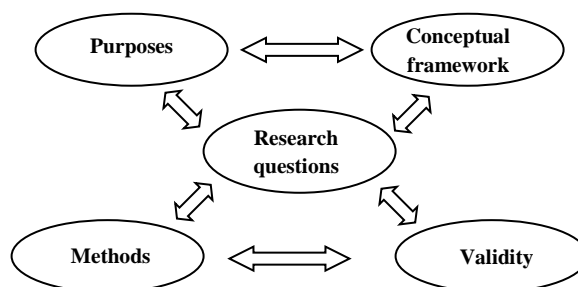
occurs. During the inferential stage, the findings from the integrated analysis are used to inform the development of inferences. The iterative and integrative nature of methods across all stages of the research processes makes fully integrated designs “the “Full Monty” of MM [mixed methods] designs” (Teddle & Tashakkori, 2006, p. 23).

The Alternative Approach to Mixed Methods Designs of Maxwell and Loomis

Currently, typologies like the one developed by Teddlie and Tashakkori are the prevailing approach to conceptualize mixed methods designs. However, Maxwell and Loomis (2003) offered an alternative approach that does not rely upon typologies, because as these scholars claimed, “the actual diversity of mixed methods studies is far greater than any typology can adequately encompass” (p. 244). Instead, they developed an interactive model to serve as a tool to help researchers design a mixed methods study.

This model includes what Maxwell and Loomis contend are the most important components of a research study: the study’s purposes, conceptual framework, research questions, methods, and validity strategies. Their interactive model is inherently integrative because its objective is to discover the ways research components can be “integrated with, and mutually influence, one another” (p. 243). Mixed methods designs emerge from the iterative reflection of each study component. The “hub” of this model is that the research questions guide decisions regarding the other components of the model. Figure 2 illustrates Maxwell and Loomis’s interactive model.

Figure 2. The Interactive Model of Maxwell and Loomis



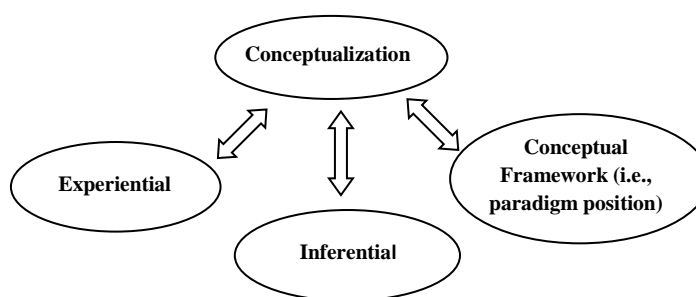
Note: Adapted from “Mixed methods design: An alternative approach,” by J. A. Maxwell, & D. M. Loomis, in A. Tashakkori and C. Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioral Research* (pp. 167–188).

The Mixed Methods Design Approach Informing This Exemplar Study

The mixed methods design approach for this dissertation’s exemplar study considers a mixed methods study to be one that integrates qualitative and quantitative methods across more than one stage of the research process. This dissertation aimed to use the three stages proposed by Teddlie and Tashakkori (2006): conceptualization (the formation of research purposes and questions); experiential (decisions regarding methodology, data collection, and analysis), and inferential (developing explanations, conclusions, and emerging theories). It was determined that this design approach would not follow Maxwell and Loomis, because Teddlie and Tashakkori’s conceptualization stage incorporates both purposes and research question, which aligned with this study’s approach to the development questions; that is, iterative reflection of substantive purposes, research questions, and mixed methods purposes. Like the research question component of the Maxwell and Loomis’s interactive model, the conceptualization stage is the “hub” of this model. However, the dissertation aimed to retain Maxwell and Loomis’s “conceptual framework” component to represent the mixed methods way of thinking

methods paradigm that informed the development of this study. Similar to all these authors, the approach to mixed methods design aimed to honor and facilitate the interaction of methods across the various stages of design. Figure 3 outlines the design approach for this study attempted to use.

Figure 3. The Design Approach for the Exemplar Study



Data Analysis in Mixed Methods Research

After studies are designed and the data collected, the next step is to analyze the data. A study's mixed methods paradigm stance, research questions, mixed methods purposes, and design give the researcher a general approach, or framework, to guide data analysis decisions; however, these aspects of the research process do not provide the researcher with any specific strategies or procedures to analyze data from mixed methods studies (Greene, 2007). In fact, the field has yet to synthesize a cohesive set of guidelines of specific strategies and procedures for mixed methods data analysis (Greene, 2008). Researchers are, for the most part, exploring fairly uncharted territory when embarking upon mixed methods data analysis. Fortunately, a few scholars have provided some guidance by defining what mixed methods data analysis entails and outlining strategies and procedures to facilitate the integrative analysis of mixed data types.

The following section focuses on the work of Greene (2007, 2008) and Onwuegbuzie and Teddlie (2003) for two reasons. First, they each provide a useful framework for mixed methods data analysis by conceptualizing the analysis process in terms of seven different main stages of working with data: (1) reduction, (2) display, (3) transformation, (4) correlation, (5) consolidation, (6) comparison (which has a number of variations), and (7) integration. Whenever possible, empirical examples of integrated data analyses are highlighted to demonstrate different integrated techniques. Second, these scholars discuss specific strategies that facilitate the integrative analysis of mixed data types.

The next section begins with a definition of mixed methods data analysis, which is followed by a summary of data analysis procedures and strategies that occur within each stage of the mixed methods data analysis process, and concludes with the integrated data analysis approach for this exemplar study.

A Definition of Integrated Data Analysis

Greene (2008) provided a succinct definition of integrated data analysis: “Integrated analyses involve the joint interactive analysis of data represented in different forms (for example, numbers and words) during the course of the study’s data analysis” (p. 14). This definition incorporates the spirit of this dissertation’s focus on integrated data analysis. Simply put, integrated data analysis involves the joint, not separate, analysis of qualitative and quantitative data, with these results integrated during the inferential stage of the study.

The Stages of Data Analysis and Mixed Methods Data Analysis

The seven stages of data analysis serve three major goals. The first goal is to reduce and organize data into a manageable form. The second is to help assess patterns of connections, trends, and interrelationships in the data, as well as to identify any differences. The third is to produce results that should validate and support researchers' conclusions and inferences (Greene, 2007).

The data reduction stage. In the first stage, data reduction, the integration of qualitative and quantitative data is virtually nonexistent; thus, researchers use reduction strategies to reduce these data sets into manageable forms. Although data reduction is a necessary step in mixed methods data analysis, the subsequent six stages of data analysis provide the greatest opportunity for data integration (Greene, 2007).

The data display stage. The second stage, data display, is not included in Greene's (2007) framework, but is in Onwuegbuzie and Teddlie's (2003). These latter scholars suggest visually displaying qualitative and quantitative results to juxtapose the findings from both types of data. For quantitative data, the most popular visual displays are graphical formats, such as histograms or graphs and charts (e.g., pie charts). For qualitative data, common displays include matrices and Venn diagrams. Onwuegbuzie and Teddlie (2003) contend the visual display of both qualitative and quantitative data might be "so compelling that data interpretation can immediately begin without advancing to the other four data analysis stages" (p. 375), or the visual display of these data may lead to further types of analyses.

The data transformation stage. In the third stage, the researcher aims to transform one type of data into another type of data. Tashakkori and Teddlie (1998) labeled two different ways to do this; one is to quantitize data (transform qualitative data into quantitative data), and the second way is to qualitize data (transform quantitative data into qualitative data). The most common type is to quantitize data, which is often accomplished by counting qualitative codes and themes (Creswell & Plano Clark, 2007). Conversely, the least common transformation is to qualitize data, and when it does occur, it is frequently accomplished by creating qualitative narratives based upon quantitative data (Tashakkori & Teddlie, 1998). The transformation of data in and of itself does not produce interpretable results. Typically, data are transformed for the purposes of facilitating the joint analysis of qualitative and quantitative data (Creswell & Plano Clark, 2007; Greene, 2007). The joint analysis may involve data correlation, data consolidation, or data comparison.

The data correlation stage. Data correlation, stage four, often involves transforming qualitative data (e.g., open-ended responses in a survey) into quantitative variables in order to correlate these transformed data with the quantitative data. This correlation might be an appropriate analytical approach for studies conducted for the mixed methods purposes of complementarity, wherein the correlation of the two types of data can enhance the understanding of the phenomenon under study.

Onwuegbuzie and Teddlie (2003) describe how Daley and Onwuegbuzie (in press) correlated close-ended survey items with open-ended survey items. This study examined male juvenile offenders' perceptions of the causes of violent behavior in others

and what important pieces of information juvenile offenders used to arrive at their conclusions. Daley and Onwuegbuzie administered a survey with both close-ended and open-ended questions. Seven themes emerged from the analysis of the qualitative data (the open-ended questions). The researchers created a matrix of these responses by assigning a code to each respondent with either a “0” if the theme was not present or a “1” if the theme was present. Daley and Onwuegbuzie then correlated the results from their qualitatively derived data to their quantitative close-ended responses. The results from this analysis found that juvenile delinquents who subscribe to or endorse self-control made fewer mistakes in attributing violence to others compared to their counterparts. This integrative analysis of qualitative and quantitative data led “to much more meaning being extracted from the data than would have been the case otherwise” (Onwuegbuzie & Teddlie, 2003, p. 366).

The data consolidation stage. The fifth stage of mixed methods data analysis involves the integration of qualitative and quantitative data to create a new variable or to consolidate variables or data sets. These new or consolidated variables or datasets are then used in subsequent analyses. Data consolidation may be an appropriate analytical approach for studies conducted for the mixed methods purpose of initiation, as this seeks to discover new perspectives or insights (Caracelli & Greene, 1993). For example, a major finding that emerges from focus groups with middle-school social studies teachers is they want textbook programs to help support their use of primary sources in instruction. In response to these qualitative findings, a new variable in the quantitative data set, called “Primary Source Support,” is created by merging individual survey

questions related to primary source support (e.g., providing DVDs with an array of primary sources, providing suggestions on how to use primary sources with students, providing suggestions on how to connect primary sources to textbook content). This new variable, which reflects this major qualitative finding, can then be used in subsequent quantitative analyses.

The data comparison stage (typology): The sixth stage is data comparison. In general, data comparison involves the interaction of both types of data such that one type of data informs the analysis of the other type of data. Typology development is one type of data comparison wherein the data from one data type is used to develop categories people, settings, and/or events, which are then examined via the analysis of the other data type (Caracelli & Greene, 1993). For example, a qualitative analysis identifies groups of attributes or themes, which are then confirmed through a quantitative analysis. In addition, typology development might also involve comparing typologies, rather than developing typologies. For example, groups of people that are identified through a qualitative analysis are compared to groups identified through a quantitative data analysis (Tashakkori & Teddlie, 1998). Typology development is well-suited for the mixed methods purposes of development, triangulation, complementarity, and initiation (Caracelli & Greene, 1993; Onwuegbuzie and Teddlie, 2003).

The data comparison stage (extreme case analysis). Extreme case analysis is another variation of data comparison. This technique involves identifying extreme cases through the analysis of one type of data, and then investigating these extreme cases through the analysis of the other type of data (Caracelli & Greene, 1993). Extreme case

analysis is well-suited for the mixed methods purpose of complementarity because the results from one method can help explain the cases identified by the other method.

The data comparison stage (data importation). Data importation is another analysis approach that can be used to compare qualitative and quantitative data. This approach involves the “importation of midstream results from the analysis of one data type into the analysis of the different data type” (Greene, 2007, p. 148). Data are then compared to assess similarities and differences between the two data sets. For example, what emerges from a factor analysis can be “imported” into the qualitative data by using these factors to categorize interview data. Researchers can then investigate the commonalities and differences across the factors from the quantitative data to the factor-derived thematic groups of the qualitative data (Greene, 2007). Data importation is well-suited for the mixed methods purposes of complementarity and initiation in that the comparison of data can help enhance understanding or initiate new insights.

Jang, McDowell, Pollon, Herbert, and Russell (2008) utilized Greene’s concept of data importation to study leadership practices in successful urban schools. These researchers collected qualitative data via interviews with teachers and principals and via focus groups with students and parents; they collected quantitative data via a survey with teachers and principals. Jang et al. analyzed both data sets according to the traditions of each data type; investigators developed thematic categories from the qualitative data and developed factors from the survey data based upon factor analysis. Upon examining the quantitative data, they found that schools did not differ significantly across the factors, which suggested that the schools in their sample exhibited similar leadership behaviors.

These researchers then compared the qualitative themes to the quantitative factors and found differences between these two groups of data. Because of these differences, the researchers decided to *import* the qualitative themes into the quantitative data by recategorizing the quantitative data based upon the qualitative themes. The researchers then analyzed these recategorized survey data and found significant differences in leadership behaviors across the schools in their sample.

Another example of data importation is the mixed methods study conducted by Sosulski and Lawrence (2008). These researchers developed a mixed methods study to better understand welfare recipients' enrollment in postsecondary education. Sosulski and Lawrence collected quantitative data from the Illinois Families Study and qualitative data via interviews with welfare recipients purposively sampled from the Illinois Families Study. These scholars coded the quantitative data based upon themes that emerged from the qualitative data analysis, thereby *importing* the qualitative data to the quantitative data. Sosulski and Lawrence then displayed these qualitative themes with their corresponding quantitative variables in a table to help facilitate integrated interpretations of both qualitative and quantitative data. This side-by-side comparison of the data helped enhance these scholars' understanding of the quantitative regression analysis. For example, the regression analysis found a positive relationship between enrollment in higher education among women and the younger the age of their child. The qualitative theme of "identification with the mother role" (p. 139) suggested this quantitative relationship existed, in part, due to the motivation of mothers to be role models for their children, who were beginning school. This integrative approach to understanding

qualitative and quantitative data led Soluski and Lawrence to conclude, “Neither the regression results nor the testimonies from the in-depth interviews alone could have provided such a multifaceted account” (p. 140).

The data comparison stage (cross-track analysis). Cross-track analysis involves reducing quantitative and qualitative data sets, transforming these data sets, and comparing the nontransformed data set to the transformed data set. Li, Marquart, and Zercher (2000) describe the use of cross-track analysis in their mixed methods study on preschool inclusion programs. These scholars transformed quantitative graphs into narrative summaries and qualitative themes into quantitative matrices. They “cross-tracked” these transformed data by comparing them to original data types. Quantitative graphs were compared to quantized matrices (transformed qualitative data), and qualitative themes were compared to qualitized narrative summaries (transformed quantitative data). Cross-track analysis served several mixed methods purposes including: complementarity, by enhancing the findings from one data set with the other; triangulation, by finding corroboration across multiple datasets; and initiation, by uncovering conflicting results.

The data integration stage. This final stage of mixed methods data analysis involves utilizing results obtained from the previous six stages of mixed methods data analyses to support interpretations, inferences, and conclusions. Thus, the final stage of data integration ensures that “all data are integrated into a coherent whole” (Onwuegbuzie & Teddlie, 2003, p. 377). Creating this coherent whole involves using analysis strategies that are different from those utilized in the previous stages of mixed

methods data analysis. There are very few studies that have focused on the ways to develop conclusions and inferences based on mixed methods analysis (Greene, 2007); however, the work of Smith (1997) and Li et al. (2000) offer two approaches to data integration.

The work of Mary Lee Smith (as cited in Greene, 2007) used Frederick Erikson's modified method of analytic induction to integrate large amounts of qualitative and quantitative data collected as part of a large-scale, longitudinal policy study of the Arizona Student Assessment Program.

[T]he study left us with a massive amount of data of such unevenness and apparent dissimilarity that they nearly defied synthesis. Although each component had been analyzed by appropriate methods and reported separately, we felt that the power of the study must lie in the integration of the data. We decided to apply Erickson's modified method (1986) of analytic induction as a way to integrate these data. [As cited in Greene, 2007].

The modified method of analytic induction involves repeatedly reading the data to inductively create a set of credible assertions. Once the researchers identify the assertions, they begin the process of legitimating these assertions by collecting confirming evidence and disconfirming evidence in order to reject unwarranted assertions or to revise them to coincide with the data (Greene, 2007).

Li et al. (2000) provided a brief explanation about their approach to data integration. This group of researchers produced a case study report "that aggregated and synthesized different types of data to achieve a coherent and holistic understanding" (p. 129). These researchers did not use any specific type of analytical approach (e.g., analytic induction) to integrate their results. Rather, they simply reflected upon their findings to facilitate this coherent and holistic understanding by presenting their synthesized findings

and interpretations to the group for feedback. During this group discussion, researchers revisited, enhanced, or refined their interpretations.

The Integrative Mixed Methods Data Analysis Strategies Informing This Exemplar Study

I used no specific approaches for the integrative data analysis of this exemplar study. There is an emergent nature to mixed methods data analysis, which makes it difficult to pinpoint the specific analytical techniques to utilize. This exemplar study attempted to work through each stage of the data analysis process, if appropriate. Because a team of researchers and stakeholders were involved in this study, it was appropriate to work through the data integration stage of analysis as a team, similar to the approach utilized by Li et al. (2000). A mixed methods way of thinking certainly promotes the integrative analysis of different data types, and potentially any of these strategies discussed in this section were conducive to this paradigm position. Greene (2007) recommended that mixed methods researchers approach their data analysis “with a spirit of adventure,” and realized that not every idea will produce meaningful results (p. 144).

CHAPTER THREE

METHODS

As described in detail in Chapter Two in the literature review, there is a lack of consensus on conceptual frameworks that involve various inquiry and methodological issues in mixed methods research. Specifically, the field has yet to produce any cohesive framework to inform integrated data analysis. In fact, it appears that mixed methods studies engage in integrated data analysis only infrequently, leaving the field with few exemplars for scholars to draw upon in their own work. Given the lack of conceptual development of mixed methods research and the paucity of integrated data analysis exemplars, the field of mixed methods research would benefit from studies that reflect upon the practice of “doing” mixed methods studies that conduct integrated data analysis. To this end, the purpose of this dissertation study is to reflect on the development and implementation of a mixed methods study engaged in integrated data analysis.

Research Questions

This dissertation addresses two major objectives: the influence of different study components on integrated data analysis, and the processes and outcomes of engaging in integrated data analysis. As a reminder from Chapter 1, to address these objectives, this study will address the following research questions:

- In what ways and to what extent do the substantive purposes, research questions, mixed methods purposes, and design of a mixed methods study inform its integrated data analysis?
- In what ways and to what extent do the specific integrative analysis techniques utilized in a mixed methods study produce meaningful results that addressed this exemplar's research questions
- In what ways and to what extent do researchers participating in the design and implementation of a mixed methods study find that its integrated data analysis helped them obtain a more comprehensive understanding of the phenomenon studied?

Background of Exemplar Mixed Methods Study

This exemplar mixed methods study is part of a larger program evaluation of the U.S. Department of Education Teaching American History Grant: the American Dreams Project. The purpose of the American Dreams Teaching American History (TAH) project is to strengthen the teaching and learning of traditional American history in a consortium of culturally and economically diverse Chicago suburban middle schools and high schools. The American Dreams TAH project aims to build teacher capacity by providing professional development (PD) that weaves together traditional American history content, historical practice, integration of historical collections and resources, and effective pedagogical skills. This project was implemented during the 2007-2008 school year, and the 2010-2011 school year was the project's third and final year. After reflecting on the past two years of project implementation, the evaluation team decided they wanted to

learn more about the pedagogical content knowledge, which was comprised, in part, by the ways in which teachers determine how to present and then teach content to their students (Shulman, 1986). More specifically, the evaluation team wanted to learn about the enactment and decision-making processes of pedagogical content knowledge of teachers participating in the American Dreams TAH project. While the program evaluation addressed the major evaluation questions for this grant project, it also investigated pedagogical content knowledge among participating teachers. In other words, the evaluation team conducted a research study as well as program evaluation.

The development of a study about pedagogical content knowledge required the development of a new set of substantive purposes, research questions, mixed methods purposes, and design. The program evaluation used both qualitative and quantitative methods to address key evaluation questions, and used a mix of methods in this research study. In addition to developing a new mixed methods study, the evaluation team was also interested in integrating qualitative and quantitative results to create a more comprehensive understanding of pedagogical content knowledge among American Dreams TAH participants. Thus, this research study provided the opportunity to create an exemplar of a mixed methods study engaged in integrated data analysis, as well as the opportunity to reflect upon the processes and outcomes of “doing” integrated data analysis.

This mixed methods study was developed through the collaboration of the American Dreams TAH project team. The research team consisted of a variety of team members:¹

- Principle investigator: A professor in the Research Methodology Department at Loyola University Chicago, who was involved with the program evaluation since 2007 and led all program evaluation efforts. This team member has engaged in social science research, and describes herself as more of a qualitative rather than quantitative researcher.
- Content-expert consultant: A professor in the Teaching and Learning Department at Loyola University Chicago, who was involved with the program evaluation since 2007, providing guidance to the evaluation team regarding content-specific issues. This team member has engaged in social science research, and describes herself as more of a qualitative rather than quantitative researcher.
- Program provider and professional development provider: Staff member of a local historical association, who was primarily responsible for professional development (PD) activities. This individual led a small number of PD activities and was involved with the project since 2007. This team member is an experienced historical researcher, who has limited experience with social science research.
- PD facilitator/leader: History education professor at a Chicago-area university, who was primarily responsible for leading several of the project's PD activities.

¹ Descriptions of team members' research experiences came from their semistructured interviews conducted towards the end of this dissertation's case study.

This individual provided feedback on PD activities and was involved with the project since 2007. This team member has had no experience with social science research.

- Graduate student: Daniela Schiazza, author, who provided data collection, data analysis, and report-writing support, and was involved with the project since 2009. This team member has had experienced engaging in social science research and is more of a qualitative rather than quantitative researcher.

The team members who worked together on the American Dreams external evaluation were the only participants eligible to participate in the study. I invited the team members via email to participate in the study and each team members was given a copy of the consent form to review; the form can be found in Appendix A.

Methodology

To address the aforementioned research questions, this dissertation used case study methodology. Specifically, this dissertation designed an instrumental case study (Stake, 1995) that used as its case the mixed methods study conducted within the context of the program evaluation for the American Dream's TAH project. Case study is an appropriate methodology for this study because it aims to obtain an in-depth, contextualized understanding of a case by providing intensive descriptions, analyses, and interpretations of this case (Merriam, 1998; Stake, 1995). The provision of richly detailed descriptions and contextualized understandings of a case provides a valuable learning tool for researchers because, as Flyvbjerg (2006) asserts, "If researchers wish to develop their own skills to a high level, then concrete, context-dependent experience is just as

central for them as to professionals learning any other specific skills” (p. 223). Given the lack of conceptual development in the field of mixed methods research, conducting a case study that provides rich descriptions and contextualized experiences about the process of “doing” integrated data analysis might help other mixed methods scholars in similar situations generate their own naturalistic or petite generalizations (Stake, 1995) to their own research practices. Although one potential limitation of case study research is the inability to generalize results from one case to a larger population, one strength is the opportunity for readers to generate their own petite generalizations to their own circumstances. It is these petite generalizations that may help elicit further reflection and discussion about researchers’ own mixed methods research and practice.

The Paradigm Informing Case Study

The rationalist–constructivist paradigm informed this case study. According to Stake (1995), this paradigm contends that a reality exists independent of individuals; however, our understanding of this external reality is dependent upon our constructed interpretation of this reality. The objective of social science is to create a clearer understanding of individuals’ constructed interpretation of a particular social phenomenon, as well as to create a collective understanding of the phenomenon. As Stake (1995) explains, “The understanding reached by each individual will of course be to some degree unique, but much will be held in common. Although the reality we seek is of our own making, it is a collective making” (p. 102). The constructivist understanding of constructed realities requires a case study researcher to provide a detailed description of the case to understand a particular interpretation of a social phenomenon. The ability

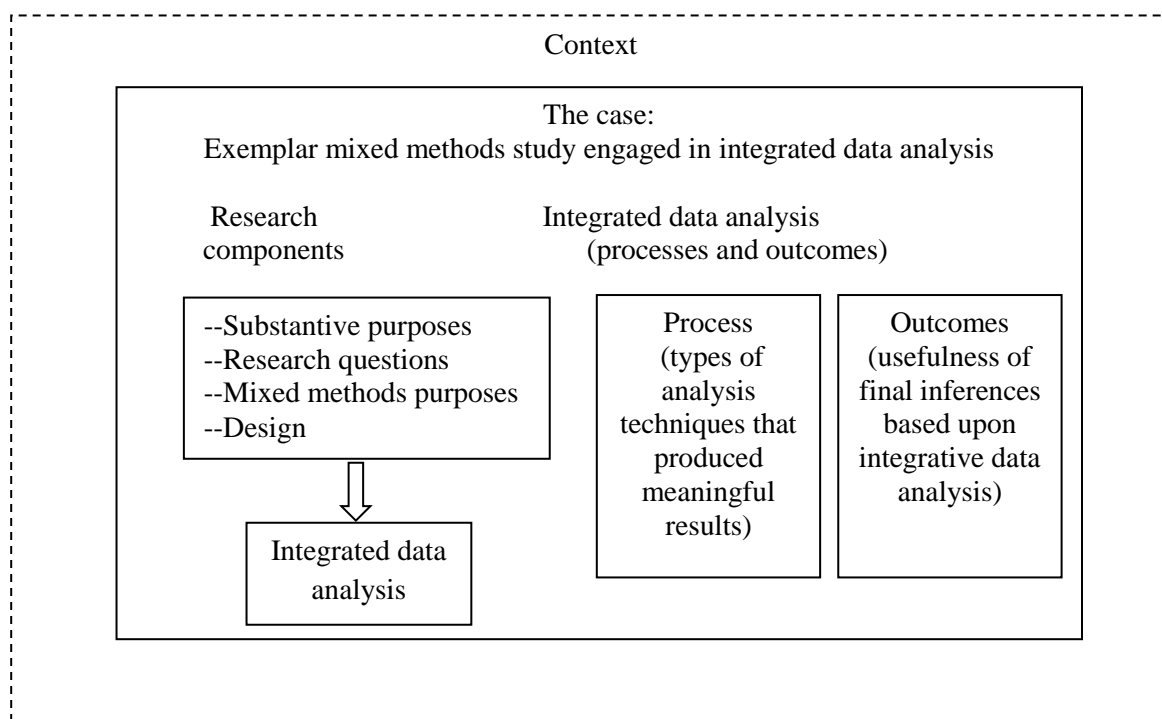
to provide descriptions and details then allows for petite generalizations, which can ultimately lead to a collective understanding of the social phenomenon of interest (Stake, 1995).

Design of the Case Study

This is a single case study that utilized an embedded case study design. The study's case is the exemplar mixed methods study engaged in integrated data analysis, which, in this instance, is a study that was developed within a program evaluation of a TAH grant project. This case is unique and purposively sampled. A unique case is one “[that] may be so rare that any single case is worth documenting and analyzing” (Yin, 2003, p. 41). As the content analyses discussed in Chapter 1 demonstrated, integrated data analysis in mixed methods studies is a fairly rare occurrence in social science research, making this a unique case. This case was also purposively sampled as it had characteristics that aligned with the research interests and questions of the study (Creswell, 2009). Namely, the study required the development of inquiry and methodological components, and provided the opportunity to engage in integrated data analysis — all of which aligned with the objectives and research questions of this dissertation study.

This is an embedded case study because different aspects, or subunits, within the case were examined (Yin, 2003). The two major subunits under study were the different research components that potentially influenced integrated data analysis and the integrated data analysis itself, including both the processes and outcomes of this analysis. Figure 4 depicts the design of this study.

Figure 4. Diagram of the Case Study Design



A major challenge of embedded case study design is to ensure that the case's subunits relate back to the case as the whole (Yin, 2003). In this case study, focusing on the two selected aspects ran the risk of the study decomposing into two separate studies rather than one unified study. The unifying nature of the research questions minimized this risk. There is a logical connection from one research question to the next, which helped to connect one subunit to the next one. While the research questions addressed different subunits of analysis, these questions also addressed the case as a whole.

Bounding the Case

Case study involves trying to understand a case as a bounded system (Stake, 1995), which implies that a case exists within boundaries. Most often, trying to understand a case entails trying to understand its context. As Figure 3.1 illustrates, one

aspect of designing a case study is to determine how to define, or bound, the case within its context. There are three possible approaches to bounding a case: the realist, middle-ground, and constructivist approach.

The realist approach assumes the case and its context are fairly fixed entities that can be predetermined at the outset of the study by using the research questions as a way to establish a priori boundaries. The middle-ground approach also bounds the case at the outset of the study by using the research questions to help establish boundaries, but acknowledges that context and, to some extent, the case itself may never be as clear or distinct as one would like. The constructivist approach contends both the case and its context emerge during the course of the study and are co-constructed between the researcher and the researched. In fact, cases may not be completely defined or bounded until the data collection or even data analysis stages (Wells, Hirshberg, Lipton, & Oakes, 1995).

For this study, the emergent nature of the case lent itself to a more constructivist, rather than a realist or middle-ground, approach to bounding the case. The manner in which this case emerged, and how it was eventually defined, was dependent on how the research team developed this mixed methods study. Similarly, the context of this case was dependent on how this case was defined and how the research team perceived the case itself. Although defining both the case and its context emerged as the study moved forward, the data collection section of this dissertation discusses the data sources that helped bound the case.

My Role as a Researcher

In this dissertation study I had two roles: as a research team member, helping to design this exemplar study, and as a case study researcher, studying the processes and outcomes of this exemplar study. My role as an research team member needs to be highlighted in order to understand my role as a case study researcher. My major function on the evaluation team was to serve as a mixed methods methodological consultant. In this role, I provided feedback on research question development, design, and data collection instruments with regards to their overall adherence to the definition of mixed methods that informed this study. I also had an active, or “participatory,” role in data analysis, data collection, and interpretation. I took a more “observational” role with regard to issues pertaining to the substantive content of the study (pedagogical content knowledge) as other team members had expertise in these areas.

In light of my role as an evaluation team member, my role as a case study researcher may be classified along the continuum of participant observer to complete participant (Gold, 1958). On the one hand, I observed elements of the study as they unfolded. On the other hand, I played a very active role in the development of the study. Regardless of whether my role can be clearly defined as participant observer or complete participant, an important consideration is the opportunities and limitations of my active and participatory role. The major opportunity of this role is that I was afforded the “insider” knowledge to accurately portray and described the case (Yin, 2003). This knowledge was necessary because this study aimed to reflect on the processes and outcomes of integrated data analysis. The experiential knowledge and insider’s

perspective can provide the necessary knowledge to reflect upon the experiences of “doing” integrated data analysis. Yin (2003) argued a potential limitation of participatory roles is that an insider’s perspective might lead to potential biases. Any potential biases were not so much from my “insider” perspective as from the lens through which I interpreted and understood this case. Namely, my extensive reading of the mixed methods literature created the particular lens that I used as I participated in the development of this exemplar mixed methods study.

Data Collection and Data Sources

A collection of multiple data sources is often considered a strength of case study research (Yin, 2003). To this end, this case study collected multiple sources of data as a way to triangulate the credibility of findings and to uncover multiple understandings of the case. With regard to triangulation, the use of multiple data sources to establish greater credibility in findings involves establishing “converging lines of inquiry” (Yin, 2003, p. 98). As cited in Lincoln and Guba (1985), Denzin discussed four major types of triangulation:

- Source triangulation: assess whether a finding or observation occurs in the same way, or has the same meaning, under different circumstances (Stake, 1995);
- Methods triangulation: the most recognized type of triangulation, which involves gathering information from different types of data collection (e.g., observation, interviews, documents) to determine what is found with one method (e.g., observation) can be validated against another method (e.g., interview) (Lincoln & Guba, 1985);

- Investigator triangulation: involves the corroboration of one investigator's finding with the findings of another investigator (Lincoln & Guba, 1985); and
- Theory triangulation: involves confirming a finding by corroborating it across different theories (Lincoln & Guba, 1985).

The major type of triangulation this case study utilized was methods triangulation. This type of triangulation helped corroborate findings across the different types of data collection and sources. This dissertation did not triangulate every single finding. Rather, triangulation was reserved for nebulous findings or findings related to the research questions, as suggested by Stake (1995).

The use of multiple data sources not only facilitates triangulation, but also the search for different meanings and interpretation of the case. The use of multiple sources for triangulation and for the search of multiple meanings is a bit contradictory. Triangulation seeks the validation of a single finding through the convergence of multiple data sources, while the search for multiple meanings implies a single finding is not possible (Stake, 1995). This dissertation acknowledges the importance of triangulation to produce credible findings; however, it also acknowledges the lack of triangulation does not necessarily produce a “wrong” finding. Relying upon both the convergence and divergence of findings might produce a complicated, and even messy, picture of this case; however, the reflective nature of this case study benefits from such complexity. To help capture the potential complexity of this case, this study relied on two major types of data collection—observations and interviews. The purposes and processes of each of these data collection sources are discussed next.

Observations

I conducted observations during formal research team planning meetings and during informal meetings with team members to capture data about inquiry and methodological decisions. The purpose of these observations was to understand the inquiry and methodological decision-making processes made by this team and how these decisions impacted integrated data analysis. Five individuals attended the evaluation team planning meetings: principal investigator, context-expert consultant, program provider, PD facilitator/leader, and me. The principal investigator arranged the formal team meetings during the early planning stages of the study, and she invited all team members to attend. I arranged formal team meetings related to data analysis and invited all team members to attend. The principal investigator or I arranged the informal meetings with team members. The informal team meetings were occasionally scheduled if formal meetings could not be attended by everyone.

I took detailed written meeting notes during formal and informal meetings. I only took written notes during meetings that occurred from September 2010 through January 2010 because I did not receive Institutional Review Board approval to conduct this dissertation research until February. I took written notes and made audio recordings during formal team meetings beginning in February 2011. I transcribed the audio recordings of the formal meetings. Neither the transcriptions nor the meeting notes included participant names or other identifying information. These written notes and audio recordings make up this case study's observation and reflective journal, which also hide identifiers of the team members.

The content and structure of this observation and reflective journal was informed by the work of Lincoln and Guba (1985). These scholars recommended maintaining an audit trail and a reflexive journal to help evaluate qualitative studies, and both of these approaches helped inform the types of observations recorded and the content of the journal. Each approach is discussed next.

Audit Trails. The purpose of an audit trail is to provide detailed logs about the processes and outcomes of a qualitative study in order to assess the trustworthiness of the interpretations and inferences that emerge from the study (Lincoln & Guba, 1985). For the purposes of this dissertation, audit trails were not used to establish trustworthiness of this case study, but rather to provide the framework for the types of observations and information recorded in the observation and reflexive journal. In the process of maintaining the audit trail, information about the ways in which the context of the case emerged during the course of the study was documented. Lincoln and Guba outlined several pieces of information that should be included in an audit trail; each of these is now described with an explanation of how each was utilized in the observation and reflexive journal.

Process notes. This aspect of the audit trail aims to provide both descriptions and documentation of the research process. This includes providing descriptions of the rationales for inquiry decisions (e.g., purposes and research questions) and methodological decisions (e.g., design, sampling, data collection procedures, etc.) (Lincoln & Guba, 1985). These two types of decisions helped inform the types of observations captured during formal and informal planning meetings. In addition to

capturing decisions and rationales for inquiry and methodological decisions, I reflected on these decisions and rationales in light of the mixed methods conceptual framework I adopted for this exemplar study, as well as the manner in which these decisions helped shaped or bounded the context of the case.

Instrumental development information. This aspect of the audit trail aims to maintain information regarding the development of any data collection instruments (Lincoln & Guba, 1985). This case study's observation and reflexive journal kept documentation of all data collection instruments, and when applicable, described any specific decisions or rationales regarding the content of these instruments, revisions made to these instruments, and any contextual issues that informed the development of these instruments.

Data reduction and analysis products. This aspect of the audit trail aims to provide write-ups of field notes, summaries, memos, theoretical notes, concepts, or hunches (Lincoln & Guba, 1985). For the purposes of this case study, this observation journal and reflective journal kept track of any data reduction and analysis products related to the independent analyses of the exemplar's case study and survey data, and its integrated data analysis. Data reduction involves reducing raw data into descriptive forms, and can include frequencies, descriptive statistics, or case summaries (Greene, 2007). In addition to maintaining detailed documentation of the different data analysis products, the observation journal described the rationales for using each integrated analysis technique, as well as team members' perceptions of the usefulness of these techniques and products.

Reflexive journal. The reflexive journal is “a kind of diary” where researchers make notes about their experiences during the research process and where the researcher reflects upon their own self and the method (Lincoln & Guba, 1985, p. 327). Typical information included in a reflexive journal is the daily schedule and logistics of the study, personal reflections of values and interests, and methodological log with methodological decisions and rationales (Lincoln & Guba, 1985). Many of the issues included in this study’s reflexive journal were incorporated into the observation journal (for example, the methodological decisions and rationales); however, the inclusion of my reflections of personal values and interests were issues that I incorporated into the reflexive journal. In this reflexive journal, I discussed my own thoughts and feelings about what occurred in a meeting, particularly as these related to the dissertation’s research questions and the progress of the mixed methods study in general. As discussed above, because my own personal lens influenced how I perceived this case, it was important that this personal perspective be brought to the surface in order for me to better understand my interpretations of my field notes.

Interviews

This case study utilized two different types of interviews: exit and semistructured. All four evaluation team members participated in both the exit and semistructured interviews. The exit interviews were brief, just five to ten minutes long, and conducted with each evaluation team members after formal evaluation team planning meetings. The purpose of these exit interviews was to summarize each participant’s understanding of what had occurred during the meetings. These short interviews were not audio-recorded,

but notes were taken that excluded names and other identifying information. The exit interview protocols are in Appendix B.

The semistructured interviews took place at the end of the study, and lasted approximately one hour per team member. There were two major purposes for these interviews: to help triangulate findings derived from the observations, and to develop an in-depth understanding of each participant's perceptions of the exemplar mixed methods study. These interviews were audio-recorded and I took notes during each interview. The audio-recordings of the interviews were transcribed by a graduate student. The interview transcriptions and interview notes did not include any identifying information. A summary of the semistructured interview was given to each interviewee to review in order to conduct a member check to validate the veracity of my interpretation (Stake, 1995). The semistructure interview protocol is in Appendix C.

Documents

The primary document this case study used was the final manuscript of the mixed methods study that was submitted for publication as another data source (Kallemeyn et al., under review). The purpose of this document was to provide a final representation of the mixed methods study. Excerpts of the manuscript are incorporated throughout chapters four and five of this dissertation to provide descriptions of the study's objectives, purposes, research questions, methodology, and data analysis. Other documents used in the data analysis include emails, meeting agendas, or protocols that were produced by the team.

Approach to Data Analysis

The data collection sources analyzed included the observation and reflexive journal that I produced, the interviews I conducted, and the final manuscript that the research team produced. The general analytical approach for these analyses was informed by the three levels of data analysis described by Merriam (1998): descriptive, category or theme construction, and theory development.

Descriptive

The descriptive level involves providing concrete descriptions of the data (Merriam, 1998). Descriptions of the exemplar mixed methods study came from excerpts of the final manuscript. The descriptive level of analysis also included summaries of inquiry, methodological, and analysis rationales and decisions from the observation journal. These descriptions and summaries are not intended to comprise the totality of the analysis of the case study data. Rather, they provide a succinct overview of the important aspects of the case to get a sense of the case as a whole.

Category or theme construction

Category or theme construction involves abstracting concrete descriptions into categories or themes (Merriam, 1998). Theme construction is based primarily on the data generated by reflexive journal and interviews, and occasionally the observation journal. Because of the exploratory nature of this case study, the development of themes emerged inductively rather than a priori. To help facilitate theme development, interviews and observation data were read to understand the specific issues and the context within which these issues arose. These initial readings generated a general sense of the data and the

case itself (Khalid-Abdul, 2009). From these initial readings of these data, themes were identified.

This case study developed themes by using the techniques of repetition and similarities and differences. Repetition was useful in finding potential themes by identifying reoccurring issues that emerged and by paying close attention to the number of times they appeared in the data. The more often these repetitions occur, the more likely they represent a theme (Ryan & Bernard, 2003). In addition, the technique of identifying similarities and differences was a useful approach to develop and identify themes. This approach, which draws on Glasser and Strauss's (1967) constant comparison method, involved noticing similarities and differences across particular segments of text to help identify themes, refine themes, and possibly develop subthemes (Ryan & Bernard, 2003).

Theory development

Theory development involves making inferences, developing models, or generating theory (Merriam, 1998); or what Stake (1995) referred to as making assertions. Ultimately, this stage involves producing interpretations of the themes and descriptions created in the prior two stages of analysis. It is during this final stage of analysis that measures are taken to ensure that these proposed interpretations or assertions are warranted and credible. Two major approaches were used to help ensure the credibility of this study's assertions. The first approach was the triangulation of data sources, and the second was locating confirming or disconfirming evidence to help rule out other rival explanations of the data (Stake, 1995; Yin, 2003).

Ethical Considerations

Any research endeavor that involves human subjects needs to take into account ethical issues that might potentially impact those individuals under study. The subject of study in this dissertation was not a person, but rather an event (a research study). The ethical considerations for this case study were not for the case itself, but for the individuals who provided the data for this study. All potential participants were given a consent form outlining all research procedures and activities involved in participating in this case study. Participation in this case study did not involve any foreseeable risks beyond those experienced in everyday life. No names or other identifying information were captured in interviews or in the field notes. The results of interviews and observations were shared on the individual level. The informed consent form did specifically state that participants may not maintain their anonymity if results of this research were published *and* they were one the co-authors in the publication or presentation.

My role as both a researcher and evaluation team member could have potentially created unique ethical situations. As an evaluation team member only, I technically did not need to maintain confidentiality of what other team members said about the research process or about other team members. Regardless of the level of professionalism involved in discussing what other team members might have said in private to me as an evaluation team member, I could make a choice to discuss, or not to discuss, what they said. My role as a researcher precluded me from sharing what others said so as to maintain confidentiality of results; however, the informal nature of the relationships I

have with many team members could have made it easy for me to forget my role as a researcher. I was consciously aware that my role was not just of a team member, but also of a researcher—a role with ethical responsibilities to all team members and other study participants.

Another potential ethical issue I faced came from my subordinate position on the evaluation team. My dissertation committee co-chairs are members of the evaluation team. With two committee members on the evaluation team, I occasionally felt hesitant to voice my critiques about the study out of a concern I was overstepping my boundaries. To help remedy this potential situation, concerns about the progress of the study were discussed with my other committee member (that is, the reader), who provided helpful feedback about ways to communicate with committee members. The purpose of discussing my concerns was not to place this individual in the middle of any potentially tense situations, but to help me think about ways to communicate effectively issues I had with the study.

CHAPTER FOUR
PLANNING AND IMPLEMENTATION OF THE EXEMPLAR MIXED METHODS
STUDY

Organization of Case Studies Findings

The findings of this case study are organized across two chapters. The findings discussed in Chapter Four focus on the process of planning and implementing the exemplar mixed methods study, while the findings in Chapter Five focus on the process and outcomes of the study's final integrated data analysis. The findings in each of these chapters are organized into three sections. The first section highlights the final representation of the mixed methods study, which is a manuscript that has been submitted to an educational journal (Kallemeyn et al., under review). The sections of the manuscript related to the mixed methods study's objectives, purposes, research questions, methodology, and data analysis are displayed in sections titled, "Final Representation," which I have edited for the purposes of space. The credibility of these edited sections of the manuscript have been verified by the first author of the manuscript (i.e., the principal investigator), who was primarily responsible for writing the manuscript with feedback from team members. The second section titled, "Rationales and Decisions," summarizes these inquiry, methodological, and analysis issues from the observation journal. The third section titled, "Reflections," presents findings from the thematic analysis of the observation and reflexive journals, exit interviews, and/or semi-structures about the

methodological and analysis decisions made by the team during the course of the exemplar study.

Final Representation: Designing and Implementing the Mixed Methods Study

Teacher professional development has been a common leverage for educational reform (Day & Sachs, 2005; Fishman, Marx, Best, & Tai, 2003). Given its role in educational reform, practitioners and policy makers question its effectiveness. Researchers have explored and demonstrated qualities of effective professional development (e.g., Borko, 2004; Garet, Porter, Desimone, Birman, & Yoon, 2001; Wilson & Berne, 1999). This study furthers this research agenda within the area of history and social studies. It contributes to a growing literature on what practitioners and scholars have learned through the implementation of Teaching American History (TAH) grants (Kortecamp & Anderson Steeves, 2006; Ragland, 2007, 2009; Ryan & Valadez 2009).

In this study, we wanted to learn about the enactment and decision-making processes among teachers who had participated in professional development rooted in the notion of pedagogical content knowledge. Pedagogical content knowledge requires a sound understanding of one's content area and the ability to select effective ways of organizing and communicating it to others (Shulman, 1986). The following research questions emerged from collaboration with professional development providers and school administrators:

1. What classroom practices related to historical content and skills do teachers participating in the American Dreams Project (ADP) enact when teaching U.S. history?
2. Why do these teachers decide to use particular content, skills, and resources in their classroom instruction?

By addressing these questions, we wanted to describe the outcome of the professional development, as well as make inferences about how professional development rooted in the notion of pedagogical content knowledge did and did not facilitate this impact. In addition to enlightening local stakeholders, including school administrators and professional development providers, regarding how history teachers translated what they learned in professional development into their classrooms, we aimed to richly describe the study context so that administrators and professional development providers from other contexts might be able to make naturalistic generalizations from this study to their own contexts (Stake, 1995).

Methods

American Dreams Project. Teachers in this study participated in the U.S. Department of Education (2012) TAH grant program, the American Dreams Project (ADP). The purpose of the ADP was to strengthen the teaching and learning of traditional American history in a consortium of culturally and economically diverse Chicago suburban middle schools and high schools. An external evaluation of this project was conducted beginning its first year of implementation during the 2007-2008 school year and continued until its third year, the 2010-2011 school year. The project

embraced the theme of *American Dreams*, which provided a comprehensive and multifaceted approach to exploring historical content as well as social, political, and legal themes in U.S. history. The aim of the ADP was to build teacher capacity by providing professional development that wove together traditional American history content, historical practice, and effective pedagogical skills.

Research design. We utilized a sequential mixed methods study design (Creswell & Plano Clark, 2007) that integrated case studies (qualitative), followed by a survey (quantitative). Although the design was primarily sequential, it was also concurrent because the final interviews for the longitudinal case studies occurred after the administration of the survey. We used case studies to understand the particularistic aspects of pedagogical content knowledge among the ADP participants, and a survey to understand the generalized aspects. The mixed methods research purpose for utilizing both of these methods was complementarity, wherein results from one method enhanced, elaborated, clarified, or complemented the results of the other method to help create a more comprehensive understanding of the phenomenon (Greene, Caracelli, & Grahman, 1989). The study also used mixed methods for the purpose of development, meaning that the data collected from one method helped to inform the development of the other method (Greene, 2007). The data from the initial case study interviews helped to inform the development of survey items. Also, additional issues that emerged from preliminary analysis of the surveys were further explored in the follow-up case study interviews. Although we had some integration of the methods throughout the study, the majority of

integration occurred during the stage of data analysis. During data analysis, we aimed to give the qualitative and quantitative methodologies equal weight.

Participants

Case studies. The research team sought to identify teachers that represented critical cases (Patton, 1990), or cases that would yield the most information. We sought teachers that met the following criteria: (a) actively experimenting with the integration of strategies and content from the ADP into their classroom, (b) perceived to exhibit instructional practices rooted in inquiry-based approaches to teaching history, and (c) taught U.S. history during the 2010-2011 school year. In order to identify teachers who met these criteria, the evaluation team examined products that teachers developed through ADP (e.g., lesson plans from the Summer Institute, summer curriculum projects) for evidence of the first two criteria, identifying a list of teachers. Next, the evaluation team asked professional development providers and high school social studies department chairs to nominate teachers who met all three criteria. These informants had numerous opportunities to observe teachers in their natural settings. Finally, the two lists were compared, resulting in a total of 6 teachers of which 4 overlapped between the lists. One teacher on the evaluation team's list was not going to be teaching U.S. history in the 2010-2011 school year. Two teachers that appeared on both lists were from the same high school, so we chose the strongest teacher in relation to the criteria. Only one teacher appeared on the department chairs' list that did not appear on the evaluation team's list. Since this teacher was the only teacher from his or her school, we decided to proceed

with including the teacher, so that there was one teacher from each participating high school, resulting in four case studies.

All case study participants were teachers with five or more years of teaching experience in U.S. history and/or American Studies at various levels, including regular, honors, and transitional (i.e., section for ESL). They had all participated in at least one of the 3-week summer institutes, a study group, and a one-day seminar. They had all majored in U.S. history in college, and either had their Master's degree or were currently in school working on their Master's degree.

Survey. One hundred nine teachers participated in at least one ADP professional development event between 2007 and 2011. Because nine participants were no longer employed by the participating schools in March 2011, the survey was administered to 100 teachers. Seventy-eight out of the 100 teachers responded, resulting in a response rate of 78%. Fifty-one respondents were high school teachers, which was the final sample used for this study, given that the case studies only included high school teachers (refer to Table 1 for additional demographic information on survey respondents). All case study participants completed the survey; in other words, the case study sample was nested (Collins, Onwuegbuzie, & Jiao, 2007) within the survey sample.

Rationales and Decisions of the Exemplar Mixed Methods Study: Purposes, Research Questions, and Sampling

The team began the development of the mixed methods study within the context of the ADP program evaluation, which already collected two years of program evaluation data. One data source for the evaluation was the annual teacher survey, which the team

decided to use in its mixed methods study because its questions overlapped with the objectives of the study. Upon entering into planning process of the mixed methods study, this qualitatively oriented team already had some level of familiarity with the pre-existing quantitative component of the study (the annual teach survey), both in terms of the survey's questions and results from the previous two years of program evaluation data.

The research team first met to plan this study in September 2010. During the team first planning meeting for the mixed methods study in September 2010, our discussions focused on the rationales of using case studies and the annual teacher survey for the mixed method study. The team's objective in using these two methodologies was to obtain both particularistic and generalized understandings of pedagogical content knowledge among ADP participants. The team did not explicitly discuss the mixed methods purpose of utilizing these two methodologies; however, the purpose of complementarity was implied during conversations as the team decided the in-depth knowledge gained from the case studies would help enhance the generalized knowledge gained from the survey.

Methodological decision-making continued during the October and November 2010 planning meetings. These meetings began with discussions about the sampling plan for the case studies. The team could not utilize the survey results to identify potential case study participants because responses to this survey were anonymous, which made it impossible to identify teachers for the case study sample. As a result, the team had to sample the case study participants independent of the survey results.

Although the team did not explicitly discuss specific research objectives, the exploratory nature of the program evaluation appeared to have carried over into these initial planning phases of the study. The team wanted to explore and describe pedagogical content knowledge among ADP participants who have attempted to integrate ADP strategies and sources into their classroom instruction. Drawing upon the framework of success case method, the team wanted to select successful cases (Brinkerhoof, 2003) to better understand the ways in which ADP influenced pedagogical content knowledge. To this end, the team wanted case study participants who exhibited eagerness and enthusiasm for ADP (i.e., actively experimented with strategies and content from ADP) and inclination towards inquiry-based teaching. Two of the teachers selected as case study participants (Jeff and Patricia)² adhered to the team's definition of a successful case; however, two other selections did not closely adhere to this definition. One case study participant, Brian², did exhibit some aspects of being a successful case, but leaned more towards traditional rather than inquiry-based instructional approaches. Some team members, however, wanted more representation of participating ADP schools in the case study sample, and because Brian did not teach in either Jeff or Patricia's school, he was included in the sample. In addition, some team members thought the inclusion of a less successful case could lead to interesting findings. Another case study participant, James², did not elicit enthusiasm among team members as a potential study participant; however, the department chair at his school questioned his lack of inclusion in the study, and in response, the principal investigator decided to include James in the sample. It is important to note that Brian and James exhibited some characteristics of a successful case

² The names of case study participants are pseudonyms.

– medium to high levels of participation and evidence of integration ADP skills, strategies, and content into their classrooms; however, the degree to which these teachers embraced inquiry-based approaches and integrated ADP skills, strategies and content into their instruction was questioned by the team. Overall, these four cases represented a continuum of ADP teachers, who had medium to high levels of participation in ADP, utilized instructional practices that ranged from inquiry-based approaches to traditionally based approaches, and to some degree integrated ADP into their instruction. While this sampling selection represented a continuum of teachers, it represented, for the most part, successful cases.

After decisions regarding case study sampling were made, the team focused their attention on developing research questions for the study. To understand pedagogical content knowledge, the team felt it was important to understand the instructional practices and decisions teachers make and how students factored into these decisions. These rationales led to the development of the following two research questions: (1) What classroom practices related to historical content and skills do teachers participating in ADP enact when teaching U.S. History?, and (2) Why do ADP teachers decide to use particular content, skills, and resources in their classroom instruction? These research questions were broad overarching, substantively-driven research questions that required both qualitative and quantitative methodologies to address. The case studies and annual teacher survey addressed the first research question, while the case studies addressed the second research question.

After developing the research questions, the team discussed the study's substantive purposes. The team chose the substantive purposes from a list developed by Newman, Ridenour, Newman, and DeMarco (2003). The first substantive purpose was to understand a complex phenomenon (i.e., pedagogical content knowledge) by examining: (a) how ADP teachers enacted pedagogical content knowledge and why teachers enacted pedagogical content knowledge in the ways they did, and (b) how teachers' participation in ADP influenced this enactment of pedagogical content knowledge. The second substantive purpose was to heighten the awareness of pedagogical content knowledge among key constituencies, including professional development program providers, department chairs of participating schools, and history educators in general.

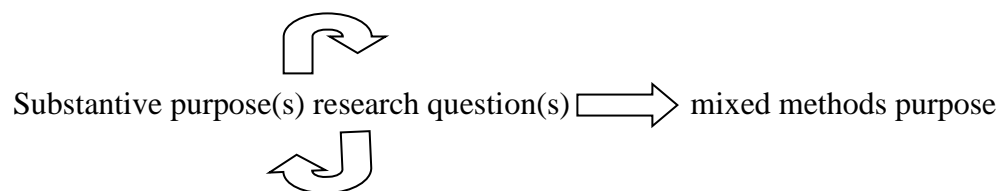
Reflections of the Planning Process: Nonlinear Planning that Privileged Qualitative Thinking

During the planning meetings in fall 2010, I assumed team discussions would follow a linear decision-making process, even though we started planning the study within a context of a program evaluation with a pre-existing quantitative component. I also envisioned this linear decision-making process would incorporate iterative reflections of both qualitative and quantitative strands of the study, despite the team's alignment with a constructivist epistemological paradigm stance. These reflections would align with the dissertation's proposed model for designing a mixed method study that included a conceptualization stage (the formation of objectives, research purposes, and questions), an experiential stage (decisions regarding methodology, data collection, and analysis), and an inferential stage (developing explanations, conclusions, and emerging

theories) (Teddlie & Tashakkori, 2006; Maxwell & Loomis, 2003). Although I did not expect the team to engage in discussions about the inferential stage at this point in the planning process, I did expect them to discuss the conceptualization and experiential stages. In other words, I thought the team would begin with discussions about the inquiry components of the study (objectives, purposes, research questions), followed by discussions on the methodological components of the study (methodologies utilized, sampling criteria). My current training as a research methodologist emphasized the importance of linear decision-making when designing studies, such that research objectives are established, research questions developed, methodology determined, and data analysis approaches are established in a sequential fashion to create a conceptually sound study design.

One of the steps in my linear decision-making process involved the development of research questions. I envisioned a potential approach to develop research questions for a mixed methods study as was outlined in Chapter Two, and displayed in Figure 5. The process involved iterative discussions about the study's substantive purposes and research questions that would help the team reflect on the purpose of utilizing a mix of methods in our study. The intent of this iterative reflection was to refine our thinking about the potential qualitative and quantitative aspects of pedagogical content knowledge that we would want to address.

Figure 5. Potential Approach to Develop Mixed Methods Research Questions



Rather than beginning our planning with iterative discussions of the study's inquiry components, the team engaged in discussions about the methodological components of the study and then engaged in discussions about its inquiry components. Once the team did engage in inquiry decisions, we developed the research questions in absence of iterative reflections of substantive purposes and explicit discussions of mixed methods purposes. With regards to the mixed methods purpose, I inferred purpose of complementarity from our discussions.

Regardless of the team's lack of adherence to my proposed approach, we did develop two overarching, substantively oriented research questions. These research questions resonated with the team members; however, they did not reflect my original objective of developing both case study-oriented research question(s) and survey-oriented research question(s). In other words, I intended to develop more methodologically oriented research questions that aligned with the study's methodologies, as suggested in the mixed methods literature (Creswell, 2009). Although this dissertation's case study data does not provide any evidence that a lack of linear planning influenced the development of substantively oriented, rather than methodologically oriented research questions, the resulting substantive oriented questions did not align to my original vision of research question development for a mixed methods study.

Embedded within this assumed linear decision-making approach was the iterative reflection of the qualitative and quantitative aspects of the study to help inform inquiry and methodology decisions. This iterative reflection of the quantitative and qualitative aspects of the study aligned with the study's paradigm stance of a mixed methods way of

thinking, which privileges the respectful dialogue of different methodological perspectives (Greene, 2007). During the fall 2010 meetings, the team did not engage in any iterative reflection between the qualitative and quantitative aspects of pedagogical content knowledge this study aimed to address. Field notes from the September and October 2010 planning sessions, as well as documentation of the study's research protocols and meeting agendas, indicated a dominance of qualitative thinking in the early planning stages of the study. These planning meetings predominately focused on the case studies, in particular the development of the sampling plan. In fact, the team only discussed the qualitative aspects of the mixed methods study during these two meetings. One team member mentioned the survey once during these two meetings, explaining to the team that we could add additional questions to the survey based on the findings we obtained from the case studies. The team did not engage in any conversations about the quantitative aspects of pedagogical knowledge they wanted to explore among ADP participants. Neither did the team reflect on the quantitative issues that were, at that time, addressed in the pre-existing annual survey that could be explored in the case studies. Although I expected a strong focus among team members on the qualitative aspects of the study, I did not expect the relative absence of discussions about the study's quantitative aspects. In other words, I did not anticipate how the role of epistemology would impact these initial planning phases of the study.

The nonlinear planning process that lacked qualitative and quantitative reflections was likely due, in part, to the fact that this mixed methods study was embedded within a multiyear program evaluation. The data generated from the previous two years of ADP's

program evaluations provided the team with information about instructional practices of ADP teachers and how they integrated ADP practices into their classrooms. Therefore, at the outset of the planning of this mixed methods study, many team members had a general idea about the study's research topic (pedagogical content knowledge), as well as a general understanding of survey results from the previous two years' worth of program evaluations. Many team members began the planning of this mixed methods study with a general sense of the research issues, which may explain why the team began discussions about the methodology rather than the inquiry components of the study. In addition, the quantitative component (annual teacher survey) was already developed, so the team had less of an incentive to engage in quantitative issues the study would address.

While I was surprised by the lack of quantitative consideration during the planning phases of the study, my team members were not. The principal investigator in her final interview justified this strong focus on the qualitative phase of the study: "We weren't starting a survey from scratch, we had infrastructure in place, and so I think it didn't really make sense because one method was more well-developed in the evaluation." The content expert echoed a similar rationale in her final interview, indicating that the case studies were not part of the original design of the evaluation, as opposed to the survey, and therefore required more "thorough conversation." In addition, neither the PD facilitator/leader nor the program provider had any issues with strong qualitative focus during the early planning phases of the mixed methods study.

The team at the outset of the study did not engage in any explicit discussions about their epistemological preferences, and by extension, their methodological

preferences. Because we did not explicitly discuss what perspectives and types of information we valued, we also did not discuss how our qualitative orientation would impact the planning of the mixed methods, in particular the quantitative component. As the content expert stated in her final interview regarding the team's qualitative orientation, "It probably would have been really helpful to look at the survey a little harder... what I think contributed to our willingness to talk more about it [case studies] than perhaps other things is that you had two people, at least two of us who were on the side of qualitative." Without specifically acknowledging the potential consequences of our qualitative orientation, the team did not have the opportunity to identify when we could have focused more on the quantitative rather than qualitative component of the study.

Regardless of the team members' comfort with the planning process of the study, I found the lack of iterative reflections of the qualitative and quantitative aspects of pedagogical content knowledge in our nonlinear discussions to be a concern within the context of a mixed methods study. First, the nonlinear decision-making approach made it difficult for me to see the connection between inquiry and methodological components of the study, which, in turn, made it difficult for me to determine any direction for integrated data analysis. Second, the lack of reflection of the qualitative and quantitative aspects did not provide me with adequate information to create a mixed methods research question, which is an inquiry component mixed methods scholars consider important to include in studies (Creswell, 2009). Third, this lack of qualitative and quantitative reflection led me to the following questions:

- How could we engage in integrated data analysis if both methodologies did not address similar, or overlapping, aspects of pedagogical content knowledge?
- How could we address these overlapping aspects if we did not discuss the quantitative aspects we wanted to understand?

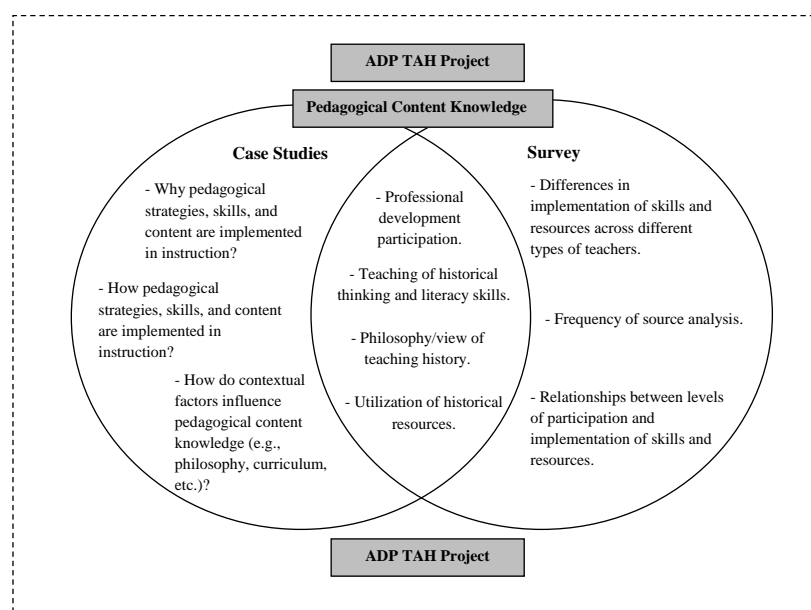
Facilitating Integration Across Methods at the Conceptual Level

The nonlinear decision-making process that lacked iterative reflections of qualitative and quantitative aspects of pedagogical content knowledge did not provide a clear path on how to integrate the case studies and survey; nor did it provide the opportunity to develop a mixed methods research question. In response to these issues, I created a preliminary overview of this study's mixed methods design that summarized the study's inquiry components (research objective, substantive purposes, mixed methods purpose, and mixed methods research question) and methodological components (case study, survey, and sampling). In the overview, I also discussed the implementation of the annual teacher survey, wherein the current content of the survey remained the same, but I reiterated the potential of adding additional survey questions based on case study results. At this point in the study, neither the team nor I explicitly emphasized the mixed methods purpose of development, though it emerged as another reason for utilizing qualitative and quantitative methodologies.

In addition to summarizing the inquiry and methodological components of the study, I created a Venn diagram that displayed the potential overlapping, as well as unique aspects, of pedagogical content knowledge that the case studies and survey might address. In this study, overlapping aspects included elements of pedagogical content

knowledge that both methodologies could adequately address. For example, what professional development events teachers participated in through ADP, what historical thinking and literacy skills teachers implemented in their classrooms, what philosophies about teaching history existed among teachers, and what historical resources did teachers use. The unique aspects included elements of pedagogical content knowledge that one methodology is better suited to address compared to the other methodology. For example, case studies are better able to uncover the “how” or “why” teachers make decisions to impart pedagogical strategies, while the survey is better able to assess how frequently teachers implement historical thinking skills. The study’s research questions guided the development of the Venn diagram, along with my understanding of the literature on pedagogical content knowledge. The Venn diagram helped ensure the integration of the case studies and survey by displaying the complementary utilization of both methodologies. Figure 6 displays the Venn diagram of the potential overlapping and unique issues the study’s case studies and survey could address.

Figure 6. Venn Diagram of Overlapping and Unique Issues Addressed by Case Studies and Survey



One of my goals for this study was to develop a mixed methods research question to emphasize the integrative nature of mixed methods studies. Because the team did not explicitly engage in conversations on the quantitative aspects of pedagogical content knowledge the study would address, I did not feel comfortable developing a mixed methods research question with a strong substantive focus. Instead, I focused on developing a mixed methods research question that emphasized the mixed methods purpose of complementarity. To this end, I developed the following mixed methods research question: In what ways and to what extent do the case study findings about the enactment of pedagogical content knowledge among ADP participants contribute to a more enhanced understanding of the survey findings about the enactment of pedagogical content knowledge across ADP participants?

During the November 2010 planning meeting, I presented an overview of the mixed methods study to the team. My intention was to have them reflect on the summary of the study's inquiry and methodological components in light of the information in the Venn diagram to confirm what we had previously discussed and, more importantly, to engage in iterative discussions about the quantitative and qualitative aspects of the study. I thought providing a written summary of major inquiry and methodological decisions, as well as a visual representation of the potential issues the qualitative and quantitative methodologies might address, would prompt the team to reflect on the quantitative aspects of the study in light of the qualitative aspects. During that November meeting, the team read through the preliminary overview. The only aspect of the summary that resonated with the team was the case study sample. The team continued their discussion about the selection of case study participants, but did not engage in any discussions about the study's quantitative aspects. I decided not to facilitate any conversations regarding these elements given the team's strong focus on the case study sample. Although the Venn diagram's display of qualitative and quantitative facets of pedagogical content knowledge the study could address did not resonate with the team, it did provide me with a roadmap to guide the integration of the case studies and the survey in the later stages of the study.

Searching for Ideas to Inform the Integrated Data Analysis

No ideas emerged for the integrated data analysis during the September 2010, October 2010, or November 2010 planning meetings. The study's two substantive research questions provided a roadmap to brainstorm on how to integrate the study's two

methodologies by identifying the overlapping and unique issues each methodology would address, while the mixed methods research question emphasized the complimentary nature of utilizing both methodologies. However, neither the substantive nor mixed methods research question provided me with direction for the integrated data analysis.

Rationales and Decisions: Implementation of Methods and Development of Data Collection Instruments

Implementation of Methods

The implementation of methodologies was predominately sequential, although some data were collected concurrently. The timing of the methods was not based upon any inquiry objective but on the timing of the methodologies for the evaluation. The annual teacher survey was conducted in spring 2011, per the evaluation schedule.

Because of the time commitment to conduct case studies, the team started collecting these data in late fall 2010 and early winter 2011 in order to gather all data by the end of the school year. Appendix D has the schedule of data collection.

Integrating Across Methodologies Through the Development of Data Collection Instruments

The team capitalized on the sequential nature of the data collection to implement the mixed methods purpose of development, which helped to facilitate integration across methodologies. The first data collected for the case studies were the initial interviews with case study participants, which had been conducted by the principle investigator and me, and transcribed by a graduate student. I conducted preliminary analyses of the data by identifying major cross-case themes. The team was not able to gather to discuss these

preliminary results, so I met individually with the principle investigator, graduate student, and two program staffers (the program provider and PD facilitator/leader) to review the results. Although the two program staff members and graduate student did not conduct the interviews, the program staffers were familiar with the case study participants because of their involvement with these teachers during PD events, and the graduate student was familiar because of her transcription work. Discussions about the preliminary analyses with all of these individuals revealed a high degree of investigator triangulation (Lincoln & Guba, 1985). See Appendix E for the initial interview protocol.

After the team members validated the cross-case themes that I had identified, we agreed to explore these themes across the larger groups of ADP teachers. To this end, I translated the cross-base themes into additional survey questions. These themes and corresponding survey questions reflected the overlapping area in the Venn diagram, wherein both methods addressed overlapping facets of pedagogical content knowledge. The following are the cross-case themes that I translated into additional survey questions. The annual teacher survey, with the additional survey questions, is in Appendix F.

- Marriage, or integration, of content and skills in teaching U.S. History and views of teaching this subject;
- Making history relevant to students;
- Organizing courses thematically;
- Perceptions of students' ability to learn history; and
- Level of collaboration within the department.

Not all of the additional questions added to the annual teacher survey were based on cross-case themes. One issue that had not emerged as a cross-case theme during the initial interview analysis was the influence of ADP on case study participants' teaching. Because the annual teacher survey was an important data source for the ADP evaluation, I decided to add a question about the most influential impact of ADP on teaching practices. ADP was potentially in its final year of implementation, so providing an overall picture of how it influenced teaching practices would give the key stakeholders important information. As the principle investigator explained, "From a program evaluation perspective, it may be useful for the chairs to see the impact of TAH [i.e., ADP]." Although the addition of this question primarily emerged from a program evaluation perspective, I felt it could shed light on the extent to which ADP influenced teachers' pedagogy and teaching of U.S. History.

In addition to the survey, the team developed the case study observation protocol after conducting the initial interviews with teachers. The development of this protocol began by refining a pre-existing observation protocol that the content expert used in another TAH external evaluation. The observation protocol primarily served as an additional case study data source to triangulate with the interviews and classroom artifacts. In terms of the Venn diagram of the study's methodologies, the observation protocol primarily provided unique information (i.e., addressing the nonoverlapping parts of the Venn diagram) about pedagogical content knowledge that only qualitative observations could provide by capturing descriptions on how teachers implemented pedagogical strategies, skills, and historical content. Although the observation protocol

essentially focused on qualitative descriptions of observed lessons conducted by case study participants, some of its content included observing issues that emerged from, or where addressed in, the initial interviews and annual teacher survey. Table 3 displays the common issues addressed in the observation protocol, annual teacher survey, and interviews. The observation protocol is found in Appendix G.

Table 3. Common Issues Addressed in the Observation Protocol, Annual Teacher Survey and Initial Interviews

Observation Protocol	Annual Teacher Survey	Initial Interviews
Integration of content and skills -- Description	Integration of content and skills -- Description (open-ended question) -- Description (close-ended question)	Integration of content and skills -- How, and why, teachers prioritize content and skills
Curricular Articulation skills --Types of skills and description of implementation	Curricular Articulation skills -- Frequency of implementing Curricular Articulation skills	
Strategies used for ELL students -- Description	Most influential aspect of ADP on teaching: -- Better teach U.S. History to ELL students	Most influential aspect of ADP on teaching: -- What opportunities most benefitted their teaching?
Multiple perspectives -- Description	-- Emphasis on multiple perspectives	
Primary and secondary source analysis -- Description of how students engaged in these analyses	Primary and secondary source analysis -- Frequency of implementing these analyses	

Reflections of the Planning Process: First Glimpses of Integrative Thinking

The enhancement of the annual teacher survey and development of the observation protocol were the first time during the course of the study when the team took into account both the case studies and survey when making methodological-oriented

decisions. By capitalizing on the mixed methods purpose of development, the team used the findings from one methodology to enhance the development of the other methodology. This integration across data collection instruments represented the operationalization of the overlapping issues of the Venn diagram that both methodologies addressed.

Team members appeared comfortable with this integration, with no one voicing resistance or questioning the rationale of exploring similar issues across data collection instruments. This integration went fairly smoothly, in part, due to the high degree of corroboration of the preliminary interpretations of initial interview data among team members. These preliminary interpretations provided the opportunity to develop additional questions to include in the annual teacher survey and helped to inform the development of the observation protocol. These interpretations, however, did not provide the team enough direction to develop the final interview protocol. So, the team decided to conduct a preliminary analysis on the observation data to help inform the development of this data collection instrument, as well as to analyze all currently collected study data; however, this analysis did not help me develop the final interview protocol because of team members' different interpretations of the data. This preliminary analysis is discussed below.

Preliminary Analysis of Observation Data

All team members met in March 2011 for 90 minutes to conduct this preliminary analysis, which included two classroom observations each for three of the four case study participants. Three of the five team members conducted observations, including the

principle investigator, PD facilitator/leader, and me. Preliminary interpretations of these data primarily focused on the pedagogical approaches used by case study participants to introduce and engage students in the material presented. By the end of the meeting, the group had come to a consensus on the major preliminary findings, which included a lack of clear objectives and directions, scaffolding, or differentiation of instruction to engage students in the material.

However, getting to this consensus was not easy, as there were differences of opinion about the extent to which study participants effectively implemented basic pedagogical strategies. The principle investigator, content expert, and I critiqued that the observed lessons lacked clear objectives or direction and scaffolding. In response to this, the program staff explained why these occurred, telling us that: (a) the case study participants had implemented new lessons and did not have the chance to refine the material, (b) one case study participant missed several classes prior to the observation, which limited the teacher's ability to implement the lesson optimally, and (c) the team conducted a limited number of observations, which prevented understanding how the lesson or unit evolved over time. Despite program staff's explanations, principle investigator, content expert, and I thought the lessons still should have incorporated fundamental pedagogical strategies. The following provides an example of disagreements over this issue:

Principle investigator [summarizing concerns]:

What I'm hearing in all these lessons is we kind of caught the beginning and end, but I think we need some middle if we really want to understand that scaffolding. Right?

Content expert [responding to program staff's reasoning]:

Yeah, but the first lesson should have given you some of that, in my own estimation, and I'm not passing judgment on them. If you are trying to introduce something, if you're hooking kids that's one piece of the introduction, and the other part of it is starting to build the skills they are going to need to engage in the unit.

Despite program's staff rationalizations that the newness of lessons and lack of observations explained why we did not see strong implementation of pedagogical strategies, the rest of the team thought this should have occurred regardless of these reasons. Although I thought conflict emerged among team members' interpretations, exit interviews with the three of the four team members did not indicate any conflict or dissonance among team members' interpretations of the observation data. One team member, however, did find some degree of tension among interpretations, explaining that, "I knew we would have [conflicts] because we all have our own biases, but they were palatable in the conversations.... Yes there was conflict."

Preliminary interpretations of the observation data did not always incorporate the different perspectives of the various team members. The different perspectives emerged from the different values team members carried into the study with regards to effective history instruction. These values emerged, in part, from the foci of the Teaching American History grant. This grant focused on the teaching of historical thinking skills and content, as well as ways to make these skills and content accessible to diverse groups of students, including English language learners (ELL) and special education (SPED) students. Although the grant's goals focused on ELL and SPED students, the program provider focused her attention primarily on the historical thinking skills and content

aspects of the grant, while the principle investigator and content expert focused their attention on these aforementioned issues, as well as on ELL and SPED students' accessibility to these skills and content. The team's interpretations primarily focused on pedagogical strategies (e.g., clear objectives and directions) and student engagement (e.g., scaffolding and differentiation) as related to ways to make historical thinking skills and content accessible to students, while little attention appeared to be paid to interpreting observation data in terms of historical thinking skills and content. An exit interview with the program provider suggested that interpretations from her perspective of the grant and ADP (historical thinking skills and content) were largely missing from our group discussion, in particular the ways in which case study participants implemented historical content and skills. As the program provider explained in her exit interview:

I was struck by how much of the conversations focused on issues on student engagement as opposed to the historical thinking of historical content being posed.... A lot of time was spent talking about what students should have been doing and less time on dissecting it in terms of either content [or] historical skills.

This above excerpt illustrates the disconnection between team members in terms of what aspects of the grant team members valued. The following excerpts further demonstrate the tensions in the values of team members in terms of what they wanted to gain from the study. The first excerpt came from field note data and it describes how a case study participant prepared for a midterm exam. The subsequent excerpts are from meeting transcripts or exit interviews, and they illustrate how the content expert and program provider differed in their interpretations of this case study participant's observed lesson.

Patricia was in front of the class, holding the assignment [directions and primary sources] in her hand at the side of her body. After the announcements, Patricia started class. She said something to the effect of, “Before we get started today I want to review the format of the study guide for Friday’s exam. Can anyone explain what’s on the study guide? One student said, “Short response.” “Yes, short response,” responded Patricia. “What else?” she asked. Another student said, “Multiple choice.” “No. Not multiple choice,” said Patricia calmly with an even tone. “Identification,” said another student. “Can someone explain what identification is?” One student provided an explanation, but I could not really hear what the student said. Then Patricia said, “Yup,” and then she went on to explain it again. She said identification is explaining how an event changed the course of history. “How did the Declaration of Independence change the course of history for the colonies? What did it do?” A couple of students provided a response, and then Patricia summarized what the students said. (Observation notes, February 2011)

The content expert found this teacher’s review of the exam interesting, explaining that:

I think it’s interesting...when she’s getting them to repeat back to her what’s going to be on the exam is an interesting exchange. She’s doing a good technique there by throwing it back on them to say we’ve done this review.... Who can tell me what this is [and] what that is.

In a follow-up email the program provider sent to me after our meeting, her interpretation of this passage focused less on a general pedagogical approach to reviewing an exam and more on how historical thinking skills were emphasized within this approach. As the program provider wrote:

During her [case study participant] review of the study guide for the Friday exam, [I] found an interesting note. She seeks further clarification of what “identification” means and describes it as: “Explaining how an event changed the course of history.” I found this striking and helpful because it shows that she is asking her students to think about change over time, [which is] an important historical fundamental.

After reflecting on the meeting and exit interviews, I became concerned that team members’ biases and different interpretations might prevent more holistic interpretations of the observation data that incorporated the various perspectives and values of team

members. Similar to the lack of explicit discussions of our epistemological and methodological preferences at the outset of the study, the team did not engage in explicit discussions of their foci of the grant and ADP. In other words, the team did not discuss what they valued, how these values aligned or not in terms of the goals of the grant, and how these values would be represented in the study. Thus, tensions among the various stakeholders emerged from these preliminary interpretations of the observation data as we focused on one set of values (pedagogical strategies related to student engagement) versus over another set of values (historical thinking and skills), as well as rationalized what occurred, or did not occur in the observed lessons.

In addition, this March 2011 preliminary analysis did not provide a clear enough understanding of the observation data to develop the final interview protocol, in part due to the conflicting perspectives of this data. I also grew concerned about how to unite all data sources—both qualitative and quantitative—into a coherent whole. The sequential implementation of methods facilitated the independent analysis of data sources, which appeared to prevent a holistic understanding of the data collected to date. Further, I questioned whether we were addressing our research questions. As recorded in my reflection notes after this meeting:

I had a few thoughts that ran through my mind during the course of the meeting:

(1) how the heck are we going to figure out the final protocol, and (2) are we really answering our research questions, and (3) how is everything (i.e., data sources) connecting together ?

Rationales and Decisions: Engaging in Preliminary Iterative Data Analysis

In response to my concerns, I engaged the team in the data comparison stage of mixed methods analysis via a preliminary iterative analysis of the qualitative and quantitative data sources analyzed to date (Onwuegbuzie & Teddlie, 2003). The analysis was iterative, not integrative, because it entailed a side-by-side comparison of qualitative and quantitative results, not an “integration” of one data type into another data type. The purpose of this analysis was to gain a holistic understanding of quantitative and qualitative data by summarizing our interpretations of all data collected to date, exploring the extent to which the current data sources addressed our research questions, and identifying issues to explore in the final interviews to help develop the final interview protocol.

The preliminary analysis of the case study data, in particular the initial interviews, focused on identifying cross-case themes, while the preliminary analysis of survey data focused on descriptive statistics of individual survey questions. I displayed descriptive statistics for quantitative variables and textual descriptions for cross-case themes in an Excel spreadsheet, with preliminary results organized by the study’s two research questions. The organization of the data in the Excel table mirrored the Venn diagram, with overlapping issues addressed by both methodologies displayed side-by-side, and unique issues addressed by each methodology displayed alone. Figure 7 displays a section of the table presented to the team.

Figure 7. Portion of Excel Table of Preliminary Case Study and Survey Results Organized by Research Question.

1. Why do ADP teachers decide to use particular content, skills, and resources in their classroom instruction?		2. What classroom practices related to historical content and skills do teachers participating in ADP enact when teaching U.S. History?	
Case Studies	Survey	Case Studies	Survey
Perceptions of students' ability --Try to attend to needs of advanced kids as well as lower-level skills through differentiating with supplementary material --Differentiating for different levels of students challenging; students have varying levels of enthusiasm -- "Our kids" aren't enthusiastic about history --"Some kids are just lazy" -- Teach thematically to honors kids because, "they can handle it."	Perceptions of students' ability -- 67% agree & 13% disagree that their students capable of going to college -- 60% agree & 13% disagree that most of their students try to learn -- 69% agree and 9% disagree that their students meet or exceed expectations -- 65% agree and 15% disagree that their students are interesting in learning	Quality of lessons incorporating ADP strategies --Lack of differentiated --Lack of scaffolding -- Utilization of challenging primary sources -- Emphasis on multiple perspectives	

Dissonance Across Data Sources and the Need for Clarity

All four team members met in April 2011 to engage in the preliminary iterative data analysis. I considered this analysis to be preliminary because it only included early analyses of both the case study and survey data. The general structure of the meeting involved me describing the preliminary results displayed under each research question and then asking team members their reactions to these results (such as, “Did anything jump out at you?”). Sometimes the team engaged in discussions on the findings of a single methodology; for example, reviewing a particular survey’s finding or findings. The analysis became iterative when the team concurrently reflected on both the qualitative and quantitative results. Iterative reflections of both data types often occurred when the case study and survey data conflicted, rather than corroborated, with one another.

The first 20 minutes of the April 2011 meeting involved me describing the case study and survey results related to goals of teaching U.S. History, the emphasis of content

and skills in instruction, and the types of historical thinking skills emphasized in U.S. History classrooms. High degrees of corroboration existed across the qualitative and quantitative results with regard to these aforementioned issues. Transcripts from this portion of the meeting consisted of me describing these results, with very little discussion from team members about these findings.

When qualitative and quantitative results contradicted one another, the team often engaged in discussions to explore why this conflict existed. For example, the qualitative and quantitative data about teachers' perceptions of students' abilities indicated some degree of dissonance across these data, and this conflict ignited conversations among team members. Survey results indicated that the majority of teachers had high expectations of their students' abilities; however, case study data indicated that not all teachers' shared this view of students. Below are excerpts from the field notes of this discussion.

Content Expert: [The] second question is they [students] try to learn and 60 percent [of teachers] are saying yes. So, what that tells me that is you could have that split between seeing them [students] as capable, but not trying from some, but for most of them, I'm assuming the 67 percent who agree with the idea of capability and good number of those are saying my kids try.

Program provider: Well, the one I find really strange is that almost 70 percent of them are saying their students are meeting or exceeding expectations.

PD facilitator/leader: Right.

PP: Right. What kinds of expectations are they holding for their students?

- CE: Yeah right. Does that mean most of my kids are getting As, Bs, and Cs? You know as opposed to Ds and Fs.
- PD F/L: Right.
- CE: I think it's an interesting finding that you know that two-thirds of them are basically saying they like their kids and they have high expectations for their kids. I'm not hearing that that's what we're seeing in their classrooms. Or even in the interviews with some of the teachers, so they could fall into one-third that's in the disagree pile; there's some inconsistencies. The other thing it does not seem to jive with is what you all have reported in terms of comments you get in the PD sessions all the time, if I'm recalling correctly, you know some things like our kids can't do that. That doesn't seem to be represented here.
- PP: I mean, yeah, if I have a certain bar sure my kids can meet or exceed that expectation, but if someone challenges me on what that bar might be, um, then perhaps they might not be meeting that other bar.... If their expectations of their students are to be able to read and understand a source, that might be a certain bar. But actually being able to use that source, for my little purpose to support a thesis... I mean they don't have the expectation...just to give an example of what that could be.
- CE: [W]e have a least one case that what is actually happening in the classroom and what's happening on the survey are very different. It tells me something about how teachers know what the right answer is. How many want to say that their kids are capable. While his numbers look high to me, they look a little too high. I also think belief and practice are two very different things. What I want to believe and what I think people want me to believe are one thing, and how I translate that belief or do not translate it into the classroom is a whole other.

This discussion exemplifies how this team questioned conflicting results in an attempt to make sense of this issue about student expectations. Although the discussion did not produce meta-inferences (overall conclusions that come from the integration of the qualitative and quantitative interpretations) (Teddle & Tashakorri, 2008), they did

help the team identify the importance of further examining teachers' perceptions of student abilities to engage in historical thinking skills in order to help better understand the nature of this conflict. The team determined that a more in-depth analysis of existing qualitative data was needed, and additional follow-up questions in the final interviews were necessary to better understand the nuances of teachers' expectations of their students' abilities, and how these expectations influenced the ways teachers approach their history instruction.

Issues to Explore in the Final Analyses: Comparing Findings Between Data Types

The team used what they learned from the results of one methodology to further explore these results in the other methodology. For example, two case study participants discussed how their master's degrees in U.S. History influenced the ways they approach teaching content and skills in their U.S. History courses. Because of this qualitative finding, the team decided to analyze survey results related to historical thinking skills by teachers with and without graduate degrees to see if differences in the frequency of implementation of these skills existed between these teachers.

The team also identified survey issues to further explore in the final interviews with case study participants. These issues emerged first from the preliminary analysis of initial interviews, and were further explored in the survey; however, after the iterative analysis, the team felt these issues needed further exploration in the final interviews. Specifically, the team wanted more clarity and nuanced understanding about how teachers organized their courses (chronologically or thematically) and how they made history relevant to students.

Perspective Taking: Role-Playing to Create a More Holistic Understanding

At the end of the April 2011 meeting, each team member accepted a different role to play to summarize the issues that needed further investigation based on the preliminary iterative analysis of the data. The purpose of this role-playing exercise was to help team members view data from different perspectives to facilitate a more holistic understanding of initial interpretations. The roles team members took were:

- Content expert: role of program provider;
- Principle investigator: role of program provider;
- PD facilitator/leader: role of program evaluator; and
- Program provider: role of teacher educator.

I assigned roles through a role-reversal perspective. If team members tended to analyze these data from a particular point of view, I assigned a role that would require them to view the data from a different perspective. The summaries that emerged from this role-playing exercise highlighted issues to be discussed by team members. The content expert and PD facilitator/leader both indicated they wanted to learn more about what change looked like because of ADP, in particular how ADP content and skills were integrated into classrooms and what did this integration look like. The content expert, principle investigator, and PD facilitator/leader each wanted to better understand the level of impact of ADP on classroom instruction, in particular which aspects of ADP were most often integrated into instruction. The principle investigator and program provider wanted to learn more about teacher expectations' of their students and how to raise these expectations.

Team members then stepped back into their own roles to discuss what else they wanted to learn more about. The team decided we did not have sufficient data to address the first research question (what classroom practices related to historical content and what skills do teachers participating in ADP enact when teaching U.S. History), so they decided to address this issue in the final interviews with the case study participants and via a more in-depth analysis of the initial interviews. In addition, the team wanted a better understanding of the second research question (how do ADP teachers decide to use particular content, skills, and resources in their classroom instruction), and specifically wanted a better understanding of the obstacles that prevented teachers from integrating ADP skills and content into their instruction. The team decided a more in-depth analysis of the initial interviews would provide the necessary data to address this issue.

**Reflections on the Preliminary Iterative Analysis: Enhancing a Understanding by
Valuing Qualitative and Quantitative Data, Iterative Reflection, and Exploring
Dissonance**

The April 2011 meeting achieved its major goals, which were:

- to have a better understanding of the extent to which the current data addressed the study's research questions;
- to be able to identify issues to address in the final interview (see Appendix H for the final interview protocol); and
- to determine additional analyses to conduct with the qualitative and quantitative data.

Because the team was highly reflective and comfortable in analyzing data, I did not create a structured protocol to lead us through our discussions. I kept facilitation to a minimum by describing the preliminary results and asking broad questions that probed their thoughts on the results. Although I anticipated team members would engage in discussions about these preliminary data, I did not anticipate the degree to which the team members would value both quantitative and qualitative perspectives, nor did I anticipate that most of our dialogue would emerge from dissonance, rather than corroboration, across data sources.

Similar to the development of the data collection instruments, the team simultaneously took into account both methodologies during this preliminary iterative analysis. Unlike the early planning phases of the study, wherein the team primarily studied the qualitative aspects, the team appeared to place equal value on both the qualitative and quantitative results during this discussion. The team, in particular the content expert and program provider, iteratively reflected back-and-forth between the meaning of the qualitative and quantitative results. The program provider, in her exit interview, discussed the benefits of this preliminary iterative analysis, stating that: “It [the comparison of the qualitative and quantitative data] wasn’t making sense to me at first how you were going to piece these together into one coherent story, but now I see how they really elucidate one another!”

It was not just the mere juxtaposition of the data sources that appeared to be helpful with this analysis, but also the dialogue that emerged as we reflected on the meaning of results. What emerged from this iterative reflection helped some team

members gain a better understanding of the data. As the PD facilitator/leader explained in her exit interview, “The discussion between the two [qualitative and quantitative results] really helped.” The dialogue often emerged among team members when quantitative and qualitative results did not corroborate. Team members reflected on both qualitative and quantitative results to make sense of the conflicting results. As the principle investigator explained in her exit interview, “Lining up the data sources was very helpful. When the data confirmed understandings, it did not provide much discussion. When we saw differences in the discussions, it promoted more dialogue and learning.”

The preliminary iterative analysis helped some team members better understand the current status of the study. In exit interviews, a key takeaway for the principle investigator and content expert was the realization that the preliminary analyzed data did not adequately address the study’s research questions and that the team needed to conduct greater in-depth analyses to adequately address the questions. While the principle investigator acknowledged this as a major takeaway, she was not surprised by the need to go back to the data, relating this to the general approach of qualitative research. As she explained, “We need to go back to the research questions, which is not completely off-line when doing case study and qualitative research. The typical process of qualitative research is to go back to the data.”

I found this April 2011 meeting highly productive as compared to previous team meetings, which had been dominated by various mental models that, in part, inhibited integrative thinking. In the end, this meeting provided me with what I had hoped to achieve: integrated thinking among team members reflective in their willingness to place

equal value on qualitative and quantitative results leading to more holistic understandings of the results. This integrative thinking among the team members, though productive in many ways, did not lead to any ideas on how to conduct the final integrated data analysis. The journey to the final integrated data analysis is discussed in Chapter Five, which begins with an excerpt from the manuscript explaining the exemplar's final analysis and its results, followed by the rationales and decisions and reflections of engaging in integrative data analysis.

CHAPTER FIVE

PROCESS AND OUTCOMES OF THE INTEGRATED DATA ANALYSIS

Final Representation: Integrated Data Analysis and Results

The integrated data analysis took a case-oriented approach to analyze the qualitative and quantitative data wherein the analytical objective was to analyze and to interpret a case, or group of cases, as a whole entity (Onwuegbuzie, Slate, Leech, & Collins, 2009). In this case-oriented approach, we used narrative summaries of each case to represent the case studies (Stake, 1995), and three clusters of ADP teachers to represent the survey findings. After an overview of the integrated data analysis, we describe the analysis of the case studies and the survey.

The first step in integrated data analysis was to analyze each data type according to the traditions of its methodology (Greene, 2007). To facilitate joint analysis of both data types, the analysis went through the data comparison stage, specifically employing a cross-over track analysis, and data integration stage (Greene, 2007; Li, Marquart, & Zercher, 2000). The data comparison stage involved the interaction of both data sets to help inform analysis, and was accomplished by: (a) juxtaposing the narrative summaries of case studies to both narrative summaries and descriptive statistical summaries of each cluster from the cluster analysis to complement results from one methodology with the other, and (b) mapping the case studies to their respective cluster to assess the degree of

corroboration across methodologies. The data integration stage involved utilizing the results obtained from the previous stages to support interpretations, inferences, and conclusions to ensure an integrated, coherent, and holistic understanding (Li et al., 2000; Onwuegbuzie & Teddlie, 2003). Two professional development providers are co-authors, because they participated in monthly meetings while designing the study and in all meetings discussing and interpreting preliminary analyses. We presented a final version of the analyses to school-level stakeholders, and they indicated that the evidence and findings validated their experiences.

Case Studies

Stake (1995) described two approaches to data analysis: direct observation, and aggregation, or categorization, of instances that are similar. Direct observation occurred during the process of data generation, by documenting fieldnotes and conducting member checks on preliminary interpretations during interviews. After completing data generation, all data sources were aggregated based on an iterative process of identifying emergent themes and aligning them with existing theoretical frameworks, including ambitious teaching, pedagogical content knowledge, and the National Standards in Historical Thinking. During the coding process, the researchers met routinely to refine the codes. Based on the frequency and substance of themes, the researchers identified uniqueness and similarity across the cases. In this process, we decided to exclude one of the cases, because the teacher did not exemplify elements of ambitious teaching. This case was originally included so that we had representation from each participating high school, even though this case did not meet all of our criteria during the nomination

process. Next, the researchers utilized the coded data to construct narratives of each case study participant.

Survey

The second author conducted a two-step cluster analysis in SPSS 18.0. Cluster analysis is a multivariate statistical technique that aims to group participants into homogenous groups. The objects within a single cluster share similar characteristics to one another, but are dissimilar to objects in different cluster(s) (Hair, Anderson, Tatham, & Black, 1998; Mooi & Sarstedt, 2011). This study's cluster analysis comprised five variables based upon Formann's (1984) recommended sample size of at least 2^m (where m is the number of variables) (Mooi & Sarstedt, 2011). The exploratory cluster analysis was based on teachers' level of participation in ADP and four variables related to teaching practices: (a) implementation of historical research projects, (b) utilization of primary sources, (c) utilization of historical resources, and (d) the implementation of historical thinking and literacy skills.

Cluster analyses were conducted based upon the Bayes Information Criterion (BIC) and Akaike's Information Criterion (AIC) goodness of fit measures to identify potential cluster solutions. BIC underestimates the number of clusters while AIC overestimates the number of clusters (Mooi & Sarstedt, 2011). BIC yielded a three-cluster solution and AIC a four-cluster solution, with each solution producing the same silhouette coefficient, which provides a simultaneous assessment of cohesion and separation of the clusters, of a fair cluster solution ($s = 0.40$). Both cluster solutions were compared to determine interpretability of results. The BIC three-cluster solution yielded a

parismonious model with more easily interpretable clusters compared to the AIC four-cluster analysis. The final three-cluster solution's silhouette coefficient, which provided a simultaneous assessment of cohesion and separation of the clusters, was 0.40 ($s = 0.40$) indicating a fair cluster solution (Mooi & Sarstedt, 2011).

Case Study Results

Patricia: teaching in a supportive school context and viewing students as capable. Patricia has taught high school history for almost 9 years. She holds a Bachelor's degree in history and is also working on a Master's degree in history. She currently teaches multiple sections of U.S. history to high school juniors with a range of academic levels at Westside High School. The school has a diverse population with White students making up just over 50% of the student body. The students have aspirations of attending college and generally come from middle class homes. The school has failed to meet Adequate Yearly Progress for two years in a row, which has resulted in an emphasis on teaching skills that are assessed on standardized tests.

Patricia appreciates working in a school where collegiality is encouraged. She values the opportunity to collaborate with other teachers in her department to improve her teaching. Patricia is especially glad to be a part of ADP, since it further supports that collaboration and extends it to teachers from within and outside of her district. Patricia's commitment to learning and growing as a teacher comes through in her conversations about teaching and in her daily practice with students. She is responsive to students' academic needs and aspirations. She has challenged herself to utilize teaching approaches that better support student learning and that build on students' life experiences. Patricia

believes that doing history is critically important for students to understand history and to engage in it at the collegiate level.

She recently decided to have all of her students, regardless of their academic level, participate in History Fair sponsored by the Chicago Metro History Education Center, a core member of ADP. History Fair (and its national counterpart National History Day) offers an opportunity for students to become historians. Patricia felt she was doing a disservice to her students by not having them involved. "... I put off doing History Fair for eight years... and then last year at the end of the year I was like my kids don't know how to research."

To further the research goals Patricia sets for her students, she requires each student to visit an archive as part of their research for History Fair. In reflecting on this aspect of her practice, Patricia recalled her own experience as an undergraduate history major of going to an archive and explained how that motivated her to make that possible for her high school students. Through participating in ADP, she also became more familiar with local archives, so that she could appropriately direct students to specific collections. Patricia sets these high expectations and works to build in the necessary support to assist students in meeting those expectations.

Patricia incorporates learning experiences that prepare students for this challenging work and demonstrates persistence in helping students reach these ambitious goals. Patricia assists them until they understand this critical concept for doing history: "So it's like I have to do it three or four times extra for some of the kids." She acknowledged that this poses a considerable challenge. "So trying to bring content and

keep the kids the students that are AP level interested as well as not making content and skills over the heads [of students] that are special ed. is a difficult balance.” Patricia’s articulation of the need to adequately support student learning in this fashion reveals a commitment to holding high expectations for all students.

Patricia focuses on giving her students experiences with multiple perspectives on a regular basis. She gives them multiple documents to analyze and asks them to assess the situation for themselves. She also uses Drake and Nelson’s (2005) model— 1st, 2nd, and 3rd order primary sources—introduced to her through ADP. In choosing such historically rich and complex approaches to teaching and learning history, Patricia demonstrates a consistent commitment to academic rigor with adequate scaffolding so that students develop a sophisticated sense of history.

Patricia wants students to understand that history is “not a perfect discipline and that there are many different interpretations to events, that their textbook isn’t the only version of history.” She connects this to being able to see and hear bias in present day political commentary and not taking what those from the left or right say as fact. Patricia strategically uses the resources available to her through her school and projects such as ADP to create the space to do history with *all* of her students and to meet ambitious short and long-term academic and social goals.

Jeff: teaching historical argumentation in a supportive school context. Jeff taught American Studies and a regular section of U.S. history. During his eight years of teaching, he has taught all levels of U.S. history and world history, as well as government and civics classes. He also developed a class in urban studies. At Southside High School,

Jeff felt that he had a lot of “latitude” in the curriculum. The students in his high school are generally from white working and middle class families that expected their students to attend college. Jeff has a Master’s in history.

Jeff clearly articulated his views of teaching, and easily provided explicit examples from his classroom practices. He discussed how he used his collection of presidential war speeches from the “Spanish-American War to Obama’s speech on...Afghanistan.” He explained, “We weren’t studying the strict chronology of events. We were looking at things more broadly. With the war messages, what I tried to do was help students see everything as its own individual context and with its own understanding.” Next, he wanted students to identify “...general trends that ran through all the speeches.” During interviews he mentioned the use of primary and secondary sources about 15 times, which “bring in those different perspectives” and expose students to the “fuel of history.” Three of the sources he mentioned came from the ADP professional development.

Jeff sees “skills a little higher than content (in the hierarchy).” Jeff supports district initiatives in professional development related to literacy, writing, technology, inquiry-based learning, and cooperative learning. He viewed “historical thinking [as] I don’t wanna say it’s peculiar, but it’s unique in academic disciplines.” He placed the most emphasis on the skill of argumentation.

Jeff seemed to value aspects of ADP professional development related to argumentation of historical content. Participating in ADP professional development challenged Jeff’s understanding of eras in history. He explained that a Summer Institute

changed his perspective and instruction on the Great Society movement, and the Progressives and the Depression. Based on his participation in a Summer Institute, he developed a lesson plan on labor unions, in which students learned about the history of labor unions, and then created their own labor union. While he primarily appreciated the professional development focused on content, he also integrated one strategy into his classroom, the STAMP technique.

Throughout the interviews and observations, Jeff had eight concrete, instructional examples related to argumentation. The skills of argumentation are critical in History Fair. Jeff has been doing History Fair with his students for seven years, which included four years prior to ADP, even though only a minority of teachers in his district participate. With History Fair projects, Jeff allows students to choose topics that may be of relevance and interest to them. He aimed to tailor his instruction around students' interests. Jeff also made attempts to connect topics to students' current lives.

Although Jeff attempted to help students see the connections between their lives, and the eras and issues they were studying, he identified connecting to students' interests and differentiating instruction as areas for continued professional growth. In one observation, while he taught a secondary source that he learned about through ADP, *Challenging Chicago: Coping with Everyday Life, 1837—1920* by Perry R. Duis, to two different tracks of students, he did not scaffold the lesson differently. In a follow-up interview he explained that scaffolding is “not done enough by anybody,” including himself.

Brian: utilizing content to engage students in a more restrictive school

context. Brian's four years of teaching experience have been at Northside High School. He double majored in history and social studies in his undergraduate studies, and he has an online Master's degree in education as well as a Type 75 certification. During the 2010-2011 academic school year, Brian taught core and honors-level U.S. history courses. U.S. history is his favorite subject to teach.

As of 2011, Northwest High School was on academic watch status. Student performance on the Prairie State Achievement Exam, which is the Illinois state achievement test given to eleventh grade students, was consistently below state averages since 2002. Based on Illinois school report cards, nearly three-fourths of Northwest High School students are Hispanic and about half are low income. Students in Brian's core U.S. history courses typically are not college-bound, while students in the honors U.S. history courses are college-bound, typically scoring, "20's, 22's, 24's on the ACT."

Over the past two years, Northwest High school has been moving towards common assessments, common curriculum, and, "...[a] team approach where everyone is teaching the same things. Everyone is testing on the same things." Although moving towards common assessments has created a more restrictive teaching environment, Brian asserts, "The way I teach is still up to me." His department also has a strong emphasis skill development, in particular literacy skills.

Although Brian feels both the discipline and his department are prioritizing skills over content, he indicates that, "I have a passion for (content)...The passion is still there." Brian's passion is evident in the way he utilizes historical content to help enrich

students' understanding of history and to make history relevant to students' lives. He spends more time on Vietnam compared to his colleagues. Although Cesar Chavez and the Chicano movement are not part of his department's curriculum, Brian spends a day and a half covering these topics because, "it's a disservice not to teach about the Chicano movement to our kids." His participation in an ADP summer institute further facilitated Brian's use of content to benefit his students. His exposure to scholarly discussions and resources during the institute inspired him to incorporate two additional days of coverage on slavery into his Civil War unit that he did not previously cover.

Brian also takes pride in that, "I make kids think." During classroom observations, we witnessed Brian fostering historical comprehension and chronological thinking skills with his students when leading students in discussions about the *Eyes on the Prize* video series. Brian would stop the video at precise points to ask students to discuss the connections between events or to explain effects of events. He then would then direct students to write these discussions in their history events reading chart or journals, and afterwards he again would engage students in discussions about their explanations.

Brian has high expectations for student participation; however, he does not have the same expectations among his core and honors students. Brian incorporates the overarching theme of American Exceptionalism into his honors classes, but does not in his core classes because, "Honors students can trace themes through history easier than a core [student] or lower level kids can." Brian focuses more on "the basics" with core

students by having them do more multiple choice tests and fewer DBQs, whereas with honors students he focuses more on discussion and analysis.

Cluster Analysis Results

The cluster analysis of the survey findings provided an overview of all the high school teachers who participated in ADP. It complemented the descriptions of the case study participants, and provided a means of situating the case study participants into the sample of ADP participants. The final three-cluster solution, based on the Bayes Information Criterion (BIC) goodness-of-fit measure, had a silhouette coefficient of 0.40 ($s = 0.40$) indicating a fair cluster solution (Mooi & Sarstedt, 2011). Although this silhouette coefficient did not yield the desired result of 0.50 or greater, a coefficient of 0.40 is reasonable given the exploratory objective of this study. Tables 1 and 2 provide descriptive statistics for survey items based on the three clusters of teachers. Among the five variables utilized to cluster teachers, the level of participation in ADP emerged as one of the most influential variables that distinguished teachers into clusters. Similar to the case studies, the results of the cluster analysis also suggested an association between participating in ADP and teachers' emphasis on historical thinking skills. The other significant variable was completion of research projects, but because three of the four high schools had a common performance assessment for a research project, this variable was confounded by the school setting. For these reasons, the names of the clusters are based on ADP participation and school context.

Cluster 1: high school teachers with high levels of engagement in ADP.

Cluster 1 represents high school teachers with high levels of engagement in ADP.

Patricia, Jeff, and the case we excluded from this article fell into this cluster. All of these teachers had high participation levels in the professional development, meaning that the teachers participated in activities all three years of the grant, were involved in at least one summer session, and attended at least one study group and a 1-day seminar. Some of the teachers in this cluster participated in all three summer institutes, and/or more than four study groups. These teachers appeared to have a strong foundation in U.S. history with the highest percentage of teachers, 60%, having an undergraduate major in U.S. history. One third of the teachers also had a Master's degree in history. Three teachers did not have Master's degrees, one of whom was Patricia, who was working on her degree. Almost all of these teachers were part of a social studies department, and 73% taught at Southside or Westside High Schools, which were Jeff and Patricia's schools, respectively.

Cluster 1 teachers emphasized historical thinking skills. All of the Cluster 1 teachers had students complete historical research projects, with 100% including thesis statements, 93% including primary sources analysis, and 93% including secondary source analysis. Five out of the six teachers who had students participate in History Fair fell into this cluster. These teachers, on average, engaged students in primary source analysis on a weekly basis. They also utilized at least two of the six area historical resources that teachers might have been exposed to through ADP. Based on Table 2, approximately one half of these teachers indicated that one of the top three influences of ADP on their

practice was placing more emphasis on developing students' historical thinking skills, which was the item that had the most variability among the three clusters. Finally, these teachers had fairly positive perceptions of their students' abilities, having the highest average ($M = 2.92$) for 'most students are capable of going to college,' which likely relates to Southside and Westside High Schools having higher socioeconomic status than did students at Eastside and Northwest.

Cluster 2: high school teachers with low engagement levels in ADP. Cluster 2 represents high school teachers with low levels of engagement in ADP. The majority of these teachers did not participate in a summer institute, participated in one or two study groups, and one or two 1-day seminars. Based on Table 2, when these teachers did participate in professional development, they reported similar influences on their teaching as did teachers in Cluster 1, which seems to indicate that they did utilize the professional development in their teaching practices. These teachers had similar educational backgrounds as did teachers in Cluster 1, with a slightly lower percentage of teachers with an undergraduate degree in history (48%). In contrast to Cluster 1, approximately one quarter of these teachers were in special education (SPED) or English as second language (ESL) departments, which might explain this slight difference. Of all the clusters, the teachers in Cluster 2 were most evenly distributed across the participating high schools.

In comparison to teachers in Cluster 1, these teachers emphasize historical thinking skills slightly less. All of the teachers required students to undertake historical research projects, but only one teacher had students participate in History Fair. Their

research projects also were less likely to include a thesis statement (80% compared to 100%). Relatively few teachers utilized area historical resources, which might have resulted from their low participation in ADP that exposed teachers to these resources. Similar to Cluster 1, these teachers had positive perceptions of their students' abilities, having the highest average ($M = 2.71$) for 'most students are interested in learning,' which differs from Cluster 1.

Cluster 3: teachers in more restrictive school contexts. In comparison to Clusters 1 and 2, we had the most difficulty describing this cluster of teachers. This cluster was quite different from Clusters 1 and 2, and had extensive variability within the cluster. We were initially surprised that Brian fell into this cluster, and found that comparing and contrasting his case with Patricia and Jeff was beneficial for better understanding this cluster. In contrast to Clusters 1 and 2, teachers in Cluster 3 were relatively evenly distributed between high, medium, and low participators. The majority of the teachers participated in ADP each of the three years, participated in one or two study groups, and one or two one-day seminars. One teacher did participate in all three summer institutes. In comparison to Clusters 1 and 2, these teachers had educational backgrounds that were much weaker in history. Only 36% of the teachers had an undergraduate major in history, and almost all of the teachers (82%) had a non-U.S. history Master's degree. Although the majority of the teachers (56%) were in social studies departments, four teachers were in SPED and one teacher was in ESL. The teachers were fairly evenly distributed across Westside, Eastside, and Northwest High Schools, and no teachers were from Southside High School. Given the greater number of

teachers in departments other than social studies, and at Eastside and Northwest High Schools, we viewed these teachers as having more restrictive school contexts.

In comparison to Clusters 1 and 2, these teachers did not seem to facilitate student learning of historical thinking skills. None of the teachers in this cluster had students complete historical research projects. These teachers also reported the lowest use of primary source analysis. Even though these teachers engaged in more ADP professional development, relatively few of the teachers utilized area historical resources. Similarly these teachers reported less influence of ADP on their teaching compared to teachers in Clusters 1 and 2. None of the teachers reorganized a course or integrated pedagogical strategies, and only one teacher revised a unit, which was Brian. Finally, compared to Cluster In comparison to Clusters 1 and 2, we had the most difficulty describing this cluster of teachers. This cluster was quite different from Clusters 1 and 2, and had extensive variability within the cluster. We were initially surprised that Brian fell into this cluster, and found that comparing and contrasting his case with Patricia and Jeff was beneficial for better understanding this cluster. In contrast to Clusters 1 and 2, teachers in Cluster 3 were relatively evenly distributed among high, medium, and low participators. The majority of the teachers participated in ADP each of the 3 years, participated in one or two study groups, and one or two 1-day seminars. One teacher did participate in all three summer institutes. In comparison to Clusters 1 and 2, these teachers had educational backgrounds that were much weaker in history. Only 36% of the teachers had an undergraduate major in history, and almost all of the teachers (82%) had a non-U.S. history Master's degree. Although the majority of the teachers (56%) were in social

studies departments, four teachers were in SPED and one teacher was in ESL. The teachers were fairly evenly distributed across Westside, Eastside, and Northwest High Schools, and no teachers were from Southside High School. Given the greater number of teachers in departments other than social studies, and at Eastside and Northwest High Schools, we viewed these teachers as having more restrictive school contexts.

In comparison to Clusters 1 and 2, these teachers did not seem to facilitate student learning of historical thinking skills. None of the teachers in this cluster had students complete historical research projects. These teachers also reported the lowest use of primary source analysis for individual student analysis and research projects/papers, as well as relatively few teachers in this cluster indicating that they placed more emphasis on developing students skills as a result of the professional development. Even though these teachers engaged in more ADP professional development, relatively few of the teachers utilized area historical resources. Similarly, overall these teachers reported less influence of ADP on their teaching compared to teachers in Clusters 1 and 2. None of the teachers reorganized a course or integrated pedagogical strategies, and only one teacher revised a unit, which was Brian. Finally, compared to Clusters 1 and 2, these teachers had much lower perceptions of their students. The means of items related to perceptions of students ranged from 2.14 to 2.29; whereas, means for Clusters 1 and 2 ranged from 2.46 to 2.92.

Rationales and Decisions: The Path to the Final Integrated Data Analysis

After the preliminary iterative analysis, the path toward the final integrated analysis began with an in-depth analysis of the case study and survey data according to

the traditions of each methodology (Greene, 2007). The principle investigator and I conducted the in-depth analysis for the survey data between April 2011 and June 2011, which initially entailed generating descriptive statistics. The principle investigator, content expert, and I conducted the in-depth analysis of the case studies between June 2011 and January 2012. This analysis began with the decision to incorporate Grant and Gladwell's (2010) framework of ambitious teaching to assist in our interpretations of the qualitative findings, in general, and pedagogical content knowledge, in particular. The framework characterizes ambitious teachers as those who:

(1) know their subject matter well and see within it potential to enrich their students' lives; (2) know their students well, which includes understanding the kind of lives their students lead, how these youngsters think about and perceive the world, and that they are far more capable than they and most others believe them to be; and (3) know how to create the necessary space for themselves and their students in environments in which others (e.g., administrators, other teachers) may not appreciate their efforts. (p. vii)

The inclusion of the three ambitious teaching factors as a theoretical framework to guide the qualitative analysis came after conducting the annual teacher survey, and therefore, did not allow the opportunity to explore all of these characteristics of ambitious teaching in the annual teacher survey. However, the first characteristic of ambitious teaching was reflected in the survey questions related to historical thinking skills and as a characteristic related to pedagogical content knowledge. Although the team was unable to explore all three characteristics in the annual teacher survey, we did explore all of them in the case studies.

During the analysis of the case studies, the team decided to eliminate one case study from the final manuscript. The case study data for James did not provide

compelling evidence across all three characteristics of ambitious teaching and, therefore, did not appear to adhere to the success-base case method approach (Brinkerhoff, 2003). Therefore, the final manuscript included case study findings only for Patricia, Jeff, and Brian. By January 2012, the principle investigator, content expert, and I completed the in-depth case study data of these three case study participants, which entailed within-case and cross-case analyses that culminated in the development of case summary narratives for each participant.

As of December 2011, I was still uncertain of my approach for the study's integrated data analysis. Despite a year of reflection on the development of this study and analyzing each qualitative and quantitative data source, I struggled with how to approach the integrated data analysis, specifically the data comparison stage (Caracelli & Greene, 1993). Initially, the only approach I thought to conduct was another round of iterative analysis, similar to the preliminary iterative analysis conducted in April 2011. I resisted this approach for two reasons: (1) I felt the need to conceptualize another integrated analytical approach to make my dissertation more meaningful, and (2) I thought the juxtaposition of case study results with survey results would decompose the case study findings such that their holistic interpretations would be lost. After revisiting the literature, I came across the work of Onwuegbuzie, Slate, Leech, and Collins (2009), which provided a mixed methods analysis framework that informed the study's final integrated data analysis. These scholars, who drew upon the work of Miles and Huberman (1994), categorized mixed methods analysis into two general approaches: variable-oriented analysis and case-oriented analysis. Variable-oriented analysis aims to

understand the relationships among variables across both qualitative and quantitative datasets, while case-oriented analysis aims to explore or identify patterns of the perceptions, attitudes, or opinions of a single case or cases of people. It was this latter approach that informed the study's integrated data analysis because it provided the opportunity to preserve the holistic interpretations of the case study narratives, which honored the constructivist epistemological disposition of the team. Epistemology in general, by extension methodology in particular, was the key in determining the approach to the data analysis. The team privileged the holistic understandings derived from case study methodology, and the case oriented analysis allowed us to preserve these holistic understandings in the qualitative data, while also exploring them in the quantitative data.

For this mixed methods study, the qualitative data analysis adopted a case-oriented approach through the development of case study narratives for each participant. The quantitative data analysis adopted a case-oriented approach via a cluster analysis of the annual teacher survey, which produced clusters of teachers based on multiple variables that characterized various aspects of teachers' instructional practices. These clusters, similar to the case study narratives, produced a holistic picture of different groups of teachers, and therefore, provided an analog to the case study narratives that facilitate the comparison across both data types.

This case-oriented also allowed the team to engage in the specific data comparison approach of typology development by allowing us to compare the "types" (cases) of teachers that emerge from the case studies to the "types" (clusters) of teachers that emerge from the cluster analysis. The analysis became integrated when I situated

each of the three cases within their respective clusters, which contextualized the cases within the larger group of teachers. This integration, as the principle investigator explained, “hook[ed],” or integrated, the case studies within the survey data. Until this point, it had been difficult to integrate the case studies within the survey data because the participants were selected independent of their survey results. The integrated data analysis aligned with the study’s original mixed methods purpose of complementarity because it allowed the team to use our understandings of the case study participants to better understand their respective clusters and, in turn, the larger group of teachers participating in ADP.

Preparing for Integrated Data Analysis Meetings

The purpose of the integrated data analysis meetings was to engage in the data integration stage of mixed methods data analysis, which entails the interpretation of qualitative and quantitative results to develop conclusions, or meta-inferences (i.e., conclusions based upon the interpretations of qualitative and quantitative results) (Teddle and Tashakkori, 2008; Greene, 2007). Similar to the data integration approach of Li et al. (2000), we aimed to synthesize the different data types to create a holistic understanding of the findings. To facilitate the interpretations of the qualitative and quantitative data results, I and other team members produced four data reduction products to facilitate the interpretation of results among team members. The first data reduction product was case study narratives, which the principle investigator, content expert, and I created. I produced the second data reduction product, which displayed the results from the two-step cluster analysis conducted in SPSS and included: (a) a pie chart that

displayed the proportion of clusters, (b) a table displaying descriptive statistics of the five variables included in the analysis across each of the three clusters and each case study participants' placement in the respective cluster; and (c) a bar chart that displayed the relative importance each variable contributed to the cluster solution. I produced the third data reduction product, which were narrative summaries of each clusters. These narrative summaries described the five variables included in the analysis and the cross-tabulation results of the clusters across different survey variables. The purpose of these summaries was to qualitize the quantitative findings (i.e., transform quantitative results into narrative forms) to facilitate easier comparisons between the quantitative and qualitative result to engage in cross-track analysis (Li, Marquart, & Zercher, 2000). I produced the fourth data reduction product at the request of a team member and was a numerical representation of the quantitative data discussed in the narrative summaries. The data reduction products for the February meeting are in Appendix I.

Integrated Data Analysis Meetings: Interpretation Meetings

The interpretation of the data took place over two meetings: on February 29, 2012 and on April 9, 2012. The purposes of the February meeting were:

- to review the case study summaries, e-mailed to the team prior to the meeting, as a validity check of the interpretations that the principle investigator, content expert, and I had developed;
- to review the cluster analysis results, which the team saw for the first time during this meeting; and

- to interpret the integrated data analysis, which involved the integration of the three case study participants (Patricia, Jeff, and Brian) into their respective clusters to develop meta-inferences (i.e., conclusions based upon the interpretations of qualitative and quantitative results).

The purposes of the April meeting were:

- to interpret the another iteration of the integrated data analysis, which involved the integration of the four case study participants (Patricia, Jeff, Brian, and James) into their respective clusters to develop meta-inferences;
- to interpret the results of the second iteration of the cluster analysis; and
- to interpret the integration of the four case study participants into their respective clusters based on the second iteration of the cluster analysis to develop meta-inferences.

Reflections of Integrated Data Analysis

In order to describe the rationales and decisions that emerged from the integrated data analysis, I found it necessary to engage in a thematic analysis, not a summary, of the observation journal (i.e., meeting transcripts). My initial reflections from these meetings were similar to those of the preliminary iterative data analysis: dissonance in results often prompted more conversation among team members than corroboration, and this qualitatively oriented team appeared to place equal value on both the quantitative and qualitative results. Other than these initial reflections, the complexity of our discussions required an in-depth analysis of the meeting transcripts and interviews to better understand what occurred during these meetings. Rather than providing a separate section

on “Rationales and Decisions” and on “Reflections,” the following sections describe the results of my thematic analysis of the meeting notes and interviews.

Integrated Data Analysis: Achieving Multiple Mixed Methods Purposes

At the outset of the mixed methods study, complementarity was one of the mixed methods purposes for using qualitative and quantitative methodologies; triangulation and initiation also emerged as two purposes for using both methodologies. The integrated data analysis provided the team the opportunity to assess the degree to which quantitative and qualitative results corroborated with each other (triangulation), as well as explore why these results conflicted with one another (initiation). In many of our discussions, the team also used complementary results of data, such that the results of one data type enhanced or elaborated the results of the other data type. The manifestation of the ways these three mixed methods purposes emerged during our interpretations of the integrated data analysis is discussed below.

Jeff and Patricia’s Integration Into Cluster One: Confirming Understandings

Triangulation, or corroboration, of data sources occurred during the February meeting when the team reviewed the integration of Jeff and Patricia within Cluster One results. Both cases fell in Cluster One, which was the cluster that appeared to represent the most ambitious group of the ADP teachers in general. The team did not engage in any discussions about implications of this corroboration, per se, although it appeared to serve a very useful validation of both methodologies’ findings. All team members in their exit interviews indicated that their key take-away from this aspect of the integrated data

analysis was the validation of data sources. The principle investigator in her exit interview described how the analysis helped to validate our understandings:

Because we situated the cases within the survey—as opposed to thinking about the cases as completely unique—we are thinking about how the case is representative of a subgroup of teachers and what kinds of teachers does this case represent. [Jeff] and [Patricia] are successful and fit into that cluster—exemplify[ing] the subgroup.

Brian's Integration Into Cluster Three: Dissonance and Corroboration

Although the team found corroboration across some of the integrated qualitative and quantitative results, we did not find corroboration across all of these data. The team encountered dissonance in findings with Brian's integration into Cluster Three. Brian's case study narrative suggested he was on the verge of becoming a more ambitious U.S. History teacher, although not at the same level of ambition as Jeff and Patricia. Cluster Three, however, represented the least ambitious group of ADP teachers, so his integration into Cluster Three did not align with our understanding of Brian. Some team members, including myself, assumed he would have fallen into Cluster Two, which was the cluster that represented the mid-range of ambitious ADP teachers. The following excerpt from the February meeting transcript exemplifies team members' trying to make sense of Brian's integration into Cluster Three.

Daniela: Any reactions to Cluster Three teachers, being that Brian fell in that cluster?

PD facilitator/
leader: Do you think Brian would recognize himself in Cluster Three?

Daniela: That's a really good question...in a lot ways I don't think so.

PD F/L: No. I don't think so.

Principle

investigator: I mean that's what's kind of surprising to me. I wonder if he, within this cluster is kind of an outlier? Do you know what I mean?

Daniela: Yeah, and I mean, I think he really got into the cluster because he's not doing a historical research project.

PI: [A]nd he was a medium participator...but if you looked at his [Curricular Articulation] composite and [Primary Source] composite—in a range—is it on the higher end? Do you know what I mean?

Daniela: Because when I saw the third cluster initially and I was writing them up I was like, oh he'll fall in Two, I didn't think he'd fall in One because that was only high participators, so he'd fall in Two, but when he fell in Three, I was like—huh? But it's because he doesn't do a research project.

The historical research project variable (as referred to in the meeting transcript above) was included in the cluster analysis because it represented a historical research thinking skill emphasized by ADP; however, these projects were required by some, but not all, of the participating ADP school districts. Namely, Jeff and Patricia's district required many of their social studies teachers to implement historical research projects, while Brian's district did not. Because the variable of historical research projects important in distinguishing the clusters, it became the source of discussion to interpret Brian's placement into Cluster Three. For some team members, the inclusion of the historical research project variable in the cluster analysis provided a plausible explanation for the dissonance in the qualitative and quantitative results, with some questioning if Brian's integration into this cluster was due to the inclusion of historical research project in the cluster analysis. In many ways, the team appeared to question whether or not Brian really represented this cluster, or conversely, whether this cluster fully represented Brian.

Although some team members did not think Cluster Three appropriately represented Brian based on our understandings of the case study results, not all team members thought Brian's placement in Cluster Three was completely contradictory to his case study findings. The program provider viewed Brian's placement in Cluster Three as plausible, given the restrictive culture at Brian's school. As the program provider explained:

There are so many contextual factors at this school that fit this description, like um, in terms of, you know, the skills, content, and the traditional focus and things that would make it difficult for him to sort of break out of that.

The program provider's own understanding of Brian's restrictive culture, as well as the case study findings about his school's culture, aligned with the principle investigators' initial interpretations of the case study results. These initial interpretations asserted that while Jeff and Patricia are ambitious teachers, "they do not have to take a lot of energy to create that space" necessary to achieve the third characteristic of ambitious teaching given the level of independence and autonomy in their social studies departments. On the other hand, Brian's more restrictive department culture would make it more difficult for him innovate and utilize the skills and strategies promoted by ADP, such as implementing historical research projects. Although the principle investigator initially questioned Brian's placement in this cluster, she eventually concluded that school context was a potentially important issue to consider in the interpretation of Brian's placement into Cluster Three. Taking into account what we learned from both the case studies and cluster analysis, the principle investigator explained in her final interview:

There was such variability in that cluster, and I think because we had already interpreted Brian as somewhat...as maybe not doing quite as much compared to Jeff and Patricia because of his schooling context—we had already done that in the case study analysis, then I think it came pretty natural to look at the variability and say, well maybe, that's about the school context that they're in.

While Brian's placement in Cluster Three did not completely align with all of our understandings of him, it did align with some of our understandings. Drawing on the findings of school culture from Brian's case study and the high degree of variability within the cluster, the team made sense of this conflict by finding some degree of corroboration between the two data types. We used our interpretations of the qualitative and quantitative results to develop a more nuanced understanding of how Brian could be representative, at least somewhat, of Cluster Three, as well as how Cluster Three could be, at least somewhat, representative of Brian.

James's Integration into Cluster One: Drawing on Multiple Understandings and Experiences to Make Sense of Dissonance

The team's April 2012 meeting explored the integration of the excluded case study (James) into the quantitative results. Although the team decided to exclude James from the final manuscript, we included him in our interpretation discussions to understand all the data we had collected. The team did not perceive James as an ambitious teacher, particularly with regard to the second characteristic of ambitious teaching (knowing their students well), so the team encountered dissonance with his integration into Cluster One, which conflicted with our understandings of him as a case study and with our understandings of Cluster One. The team drew upon understandings of the study data, and program experiences to help make sense of this dissonance. Given

the complexity of how this dialogue unfolded among the team, the following section includes excerpts from the April meeting transcript that exemplify the major themes that emerged from our iterative reflections of the data. These themes represented the ways the team attempted to understand the dissonance in the data and provided corroborating evidence to support a plausible interpretation of this dissonance. These themes included:

- drawing upon our understandings of the case study data;
- drawing upon our understandings of current and previously collected program evaluation data;
- drawing upon our current and previous program experiences with teachers; and
- taking into account analytical limitations of this study’s cluster analysis.

These themes are noted in bold subheadings, followed by excerpts from the April transcript.

Plausible interpretation of dissonance: social desirability versus actual practice.

Content expert:	This [James’s integration into Cluster One] seems like a typical, this is what I see myself doing versus what actually happens in the classroom. Kind of like, and I’m not sure if it’s—“I know my answer so I’ll answer that way,” or “I want to be able to do it this way but in reality it comes out a very different way in the classroom.”
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Drawing upon understandings of James’s case study (e.g., lack of focus on historical thinking skills) to question his integration into Cluster One.

Program provider:	I guess one of the questions that I have was sort of a follow-up on that was when he was observed...in a transitional U.S. History class, and his survey is that based on—I can’t remember his teaching assignments.
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Daniela: He was doing only transitional the year that he took this survey. So, I'm not sure what he [was] thinking about, if he was thinking about in general, or if he was thinking about specifically with transitional.

PP: OK. That is a mismatch from what I thought I was hearing from the notes that we read from that session [referring to the observation data from the case studies].

Drawing upon case study data to corroborate plausible interpretation of the dissonance (i.e., social desirability versus actual practice).

Principle investigator: What I recall from his observation is we thought about the activities was in theory, good, which completely missed the mark when they met the students, so maybe it fits with what [the content expert] is saying in that he's reporting what he ought to do, and since one of the primary variables on the top of the Cluster analysis is "[Did] you do a research project"—it's yes—and we know in his school he's required to, right, so he says he does it, but maybe it's one of those things that in theory he's doing it but yet in practice...

Drawing on the case study findings of James (e.g., lack of historical thinking skills), Patricia, and Jeff (e.g., focus of historical thinking skills) to question James's integration into Cluster One.

PP: [Y]eah the assignment that was the focus of the data of the observation that I recall was them doing this resume...the skill that he was focused on was not a historical skill in anyway. His reason for doing it was not historical thinking or whatever...which arguably is a laudable goal for these students—but it was not necessarily the kinds of expression of these things, for instance, that Patricia or Jeff were bringing in.... I mean that was kind of research project but they're a lot of elements missing in terms of the—but that was one day, so I don't know what he does the rest of the time though.

Drawing on program evaluation data to corroborate the plausible

interpretation of the dissonance (i.e., social desirability versus actual practice).

Daniela: Well, in my interview with him—and I’m also drawing upon when we did a mini-case study with him a year before and just some of, like the spring interviews we did with him [for the program evaluation]—I mean if you ask him about primary source use and emphasizing skills, it’s always like, “Yeah, I use a lot of sources. I use blah, blah, blah, blah, blah,” and he’ll rattle off sources.... We’ve seen his observations—we questioned the scaffolding in them, we questioned the quality of it, and we questioned whether or not he puts his kids front and center when he does it...but yet he’s still in this cluster.

Considering analytical limitations of the study’s cluster analysis to help

understand the dissonance in the integration.

PI: For me, when I first saw this when I was working with the paper, in some sense it discredited that cluster for me, right. It did because how can he fall into that cluster as well? Like I thought he’d might fall better in what I called Cluster Three in the paper—teachers in a more restrictive school settings, but he didn’t. But maybe that was just because he’s in a school that requires a research project—that was a primary, you know, from a mathematical side, variable that influence the clustering.

Daniela: And he was a higher participator.

PI: Right.

Daniela: [W]hich factored into that too because it [participation] was the second most important variable that influence that cluster.

Drawing on previous program experiences to corroborate the plausible

interpretations of social desirability versus actual practice.

CE: This is more anecdotal, but, like, especially...there are some people who are, like, serial professional development

attenders. It doesn't mean that they—and they sound great in a room of adults, right? And then they disconnect, though, in what they...[bring] back to the classroom. It's almost like they're there for their own benefit versus to take what they're getting and translate that into their classroom practice. So, that's why it doesn't surprise me why he can fit into Category One with those particular variables and the kinds of questions that are being asked. I think he is the kind of person that you have to be in the room to see whether or not this stuff is going anywhere other than into a nice file cabinet, or into a nice lesson plan that might get sent to the AHA [American Historical Association], you know what I mean?

Drawing on previous program experiences to question James's integration into Cluster One.

PP: I think what stuck to me in the encounters that I've had with him in professional development that he personally—like the criteria of highly participating does not surprise me at all. What surprises me, what I don't think that necessarily fits for me, is having a fairly positive perception of his students' abilities and sort of be willing to challenge them, thinking that they were up to that versus the other teachers that fall in that category, very much thinking, "I'm going to have high expectations for this student and we're going to go after that," and he did not give me that impression in the conversations that we were having.

Considering the analytical limitations of the study's cluster analysis to help understand the dissonance in the integration.

PI: Well, maybe one thing to think about is in terms of the ambitious teaching framework is the variables [included in the cluster analysis] that fit in there are much more aligned with the first category and not so much about the perceptions of students. Would they cluster differently, would they separate out if you did that? Like if you had the perceptions of students in there. I think given what they had clustered on, it makes sense.

Daniela: And that's just the limitation of having a smaller sample size. There [are] only so many variables—I could only include five [because] that's the cap that I had. So, I kind of chose the ones [that] the survey was about...and that's kind of what I put in there, and participation. If we had a larger sample size it would be interesting to put in student perceptions...

Drawing upon understandings of James's case study (e.g., lack of focus on historical thinking skills) to question his integration into Cluster One.

PP: I mean it appears in the one [Cluster One] that—that also surprises me a little bit because of what [they] report back [i.e., the observation data] being about these life skills, rather than historical skills.

Drawing on previous program evaluation data and case study data to help understand the dissonance in the integration.

Daniela: Well, I guess it will depend (a) what he thinks of as historical thinking skills. You know when I had my interview with him [for the program evaluation], I was probing him on thesis development because it was a huge thing in Jeff's interview and he had a ton of examples on it. He's [James] is like, "Well they do a thesis sort of, but they really don't know they're doing a thesis." So, he's probably going to put down "I'm doing thesis development," but it's not like how Jeff spends his whole school year helping kids write a thesis.

CE: Well, and that's exactly why you did the case studies and the observation stuff...

Daniela: ...because we wouldn't know that...

CE: ...because this can very well be misleading, or you can have just as many people misreading it [the quantitative results] in a different way, right? So, that's why the averages are kind of...it gives us somewhat of a picture.

More comprehensive understandings, invalidated cluster results, or both?

Although our discussions about James were not reflected in the final manuscript, they demonstrate the potential ways dissonance in results helped to initiate new insights and understandings when qualitative and quantitative data were both valued through iterative reflections. By valuing the cluster analysis results, as well as the case study findings, a more nuanced understanding of James emerged as a high participating ADP teacher who believes he implements historical thinking at a high level, but appears to fall short on incorporating ADP skills and strategies into his classroom. Thus, the team was hesitant to select James as a successful case to study. Our initial interpretations of his case study data helped to support our initial hesitation, and the conflict that emerged in the integrated data analysis reinforced our initial interpretations of this case. The integrated data analysis exposed the disconnect in James's practice — as a teacher who highly participates in professional development, but does not appear to substantially change his actual teaching practice because of professional development. As the content expert stated in the April meeting:

[T]he cluster analysis reinforces the story around him. There's a disconnect with what the program was seeing and what the school is seeing—the adults at the school. So, I think that's a huge benefit to see that. I'm not sure if we would have gotten to that if we didn't look at the cluster analysis.

The dissonance also led others to question the validity of Cluster One in general. The principle investigator thought this dissonance invalidated Cluster One results. And in her exit interview, the program evaluator explained, "His placement invalidated the cluster. Jeff and Patricia are exceptional.... His [James's] placement brings up the question that not all teachers in Cluster One look like Jeff and Patricia." In many ways,

integration of Jeff, Patricia, and James helped to explain some, but not all, of the teachers in Cluster One. Perhaps James's integration into Cluster One partially invalidated these results, as not all of these teachers are ambitious like Patricia and Jeff. As the program provider explained in her exit interview, "That cluster has, at least, one outlier, but [it] still held together." Regardless to the degree to which James's integration invalidated Cluster One results, this conflict resulted in a team discussion that drew on case study understandings and cluster analysis results to better understand James, as a case, as well as potentially other ADP teachers.

Utilizing Qualitative Findings to Enhance Understandings of Quantitative Findings

Inherent in many of our discussions, even those about dissonance, was the utilization of case study results to better understand, or make better sense of, the cluster analysis results. The aforementioned section regarding the dissonance of James's placement in Cluster One demonstrates how the team reflected on his case study results to make sense of his placement in Cluster One, which, in turn, helped us understand Cluster One teachers in general. Although the aforementioned meeting transcript highlighted a rather complex discussion that incorporated different sources of understanding to make sense of the dissonance, it also demonstrated the ways in which this team used the understandings of one methodology to help make sense of the other, even when these results conflicted with one another. For example, some team members appeared to develop a more enhanced, or nuanced, understanding of Cluster One teachers when reflecting on James's case study results. James's case study results demonstrate his lack of focus on historical thinking skills, which led some team members to conclude that

some Cluster One teachers may impart historical thinking skills more like James and less like Patricia and Jeff. At the end of this discussion, the content expert pointed out the benefit of the complementary use of qualitative and quantitative methods, emphasizing that the quantitative results could easily be misinterpreted if it were not for the qualitative data.

Other instances of the complementary use of qualitative and quantitative data occurred during the February 2012 meeting. The program provider discussed her program experiences with teachers in relation to findings in Cluster Three, specifically how teachers' perceptions of students' abilities appeared to influence the extent to which they implemented historical thinking skills in their classroom. The next excerpt of the meeting transcript highlights how Brian's case study helped to enhance, as well as corroborate, the program provider's experiences and our understandings of Cluster Three teachers.

Program provider: Yeah, it was important to talk, to have kids understand an historical argument and evidence, and we'll talk about why that's important in a class, but when you get into how you're going to do it, "It's well my kids can't do that."

Daniela: And when you look at Cluster Three, those teachers have less positive perceptions of their students compared to Cluster Two and Cluster One. They have a little bit more ambivalent feelings about their students' abilities compared to the other two clusters, which sort of aligns with what we found with our case studies if we look at Brian having definite opinions about who can do what in a class and who can handle what skills in class.

The results from Brian's case study results provided an example of how ambivalent feelings about student abilities can influence how and what historical thinking skills are imparted to students. Although the team did not explicitly discuss how Brian's

perceptions of students influenced how he imparted historical thinking skills to students, we understood this issue given our familiarity with his case study results. Although Brian's case study may not represent all Cluster Three teachers' perceptions of their students, it helped to paint a picture behind the numbers we found in the cluster analysis, as well as to corroborate team members' discussions about the influence of teachers' perceptions of student abilities on the implementation of historical thinking skills.

Another example of how the qualitative results helped to make sense of the quantitative results occurred when the team was trying to differentiate between Cluster One and Cluster Two teachers. Utilizing our knowledge of Patricia's case study findings, in light of the cluster analysis results, the team was able to better understand the differences between Cluster One and Cluster Two teachers, as the following excerpt from meeting transcripts highlights.

Principle investigator: I don't think I've made a connection yet to the case studies. One thing I was thinking about was Cluster One seems to be more likely to be teaching U.S. History, so they're like participating high and they're really involved. Cluster Two, in general, their instruction doesn't look that different based on what's represented here, but they're just low participators—I noticed they're less likely to be teaching U.S. History.

Content expert: But that use of historical resources is drastically different for One versus Two and Three.

PI: And that's probably because of not participating, right? They're not connected to those resources, but, like, if you look at [the] use of primary sources.... I mean it's a little lower, but it's not as low group three.

CE: If we go to the case studies, that's where Patricia is different. She's gathering documents. She's creating this kind of resource bank in her classroom for her students,

[as] opposed to using whatever is in the teachers' room, you know, what comes from the kit. So, that active kind of interest in history themselves.

This excerpt exemplifies how understanding both the cluster analysis results (Cluster One teachers used more historical resources than Cluster Two) and case study results (Patricia's focus on using multiple historical resources) helped the team better understand the potential differences between these two clusters. Although the team could have assessed the difference between the two clusters based on quantitative results alone, the team's reflection on Patricia's case study helped to understand the differences in the clusters, as well as to enhance our understanding of what the use of historical resources might look like in a classroom by drawing upon Patricia's case study results.

Study's Integrated Data Analysis: Providing Opportunities for Iterative Dialogues and Nuanced and Comprehensive Understandings

Exit and final interviews with team members suggest that the integrated data analysis led to more nuanced and comprehensive understandings than would have occurred if we reflected upon qualitative and quantitative results in isolation. The PD facilitator/leader in her final interview indicated how the complementary utilization of the qualitative and quantitative helped her develop more enhanced understandings:

Well, I think if you just look at numbers, just statistics within the context, we would have—I think we would have—come to very, very different conclusions, whereas the narratives gave context to the numbers.... The case studies gave us a way to interpret that and put a human element to it.

Similarly, the content expert found that the integration of the qualitative and quantitative data helped the team to explore issues and to develop conclusions that might not have otherwise occurred if data sources were analyzed in isolation. The content

expert found that the dissonance of James's integration into Cluster One led the team to ask new questions, which then led to new understandings. In her final interview she said:

I like the questions we came up with as a result of that analysis, and it's actually questions for another day, but that idea of, "Oh, I didn't think that teacher would fall in that category." And trying to make sense of what is that from anecdotal and... formal case study.... Why doesn't that add up to what we are seeing in the data around this teacher and what accounts for that?... So I don't know if we would have seen that if we [had just] done the survey or just the case study. I think what we ended up with is a phenomena that happens a lot in professional development—it's the serial professional development participant who probably loves learning, um, but doesn't have the tools or the support or desire, or whatever it might be, to bring that back to the classroom in a way that will enrich and engage their own students.

The program provider echoed similar benefits of the integrative data analysis, stating:

[The integrated data analysis] provides a unique story and wouldn't be told with quantitative data alone and not [with] the qualitative alone. [It] helped to illuminate things and asked things that would not have been asked if it had not been the two [together].

As the principle investigator succinctly described in her final interview, "When things are looked at in isolation you can't have a dialogue. When you have two things, you can have a dialogue, and there's a lot of nuanced things that came out of that."

The Influence of Mental Models in the Interpretation of the Integrated Data Analysis

The integrated data analysis in and of itself did not lead the team to its meta-inferences. In other words, the analytical technique of integrating the case study participants into their respective clusters did not produce our team's final conclusions and interpretations. The meta-inferences emerged from discussions among a team of individuals who were comfortable in engaging iterative reflections of results and who equally valued qualitative and quantitative data. As the program provider stated in her

April exit interview, “I really thought we put the qualitative and quantitative on equal footing.” As the team’s facilitator, I actually did very little facilitating to get the team to place equal value on the qualitative and quantitative results. This led me to ask, “Why did our team engage in a dialogue of results with very little guidance from me?”

During the preliminary iterative analysis and final integrated data analysis meetings, the content expert and program provider placed equal value on both qualitative and quantitative data and comfortably engaged in iterative reflections of both data types. This is not to say other team members did not engage or instigate similar types of discussions, but these two team members most frequently engaged in these iterative reflections of both data types. These two individuals have backgrounds in historical research, and both agreed this background influenced how they interpreted the study’s social science-based data sources. In her final interview, the content expert indicated that her historical research experience created a level of familiarity with iterative reflection of data sources, such as primary and secondary source documents. As she described:

In historical research you’re constantly looking at how your sources relate to each other and how they are not related to each other, and what is significant about that. It’s somewhat similar to the whole triangulation idea in qualitative, but it’s not as formulized, I guess. And when I think of historical research, it’s methodical and at the same time it’s messy, and you’re constantly mixing and matching, and you’ll be way into analyzing one set of documents and you’ll find something that sends you back... so it is a back and forth. It is a conversation amongst the documents or the data sources.

The content expert’s mirrored this “conversation amongst the documents or the data sources” through her iterative, back-and-forth reflections of qualitative and quantitative data sources. The team’s iterative reflections of both data types often led to further questions about the results about the qualitative and quantitative results we

analyzed. The program provider indicated historical research involves both a conversation among documents and constant questioning of the meaning of documents, explaining:

Historians always have, like, ten other follow-up questions.... I think it [a historical research background] makes you question things. It makes you [think]... that 57 percent on whatever, it makes you say, “Well, hey, is that 57 percent, is that really a good thing?” It may look like a bad thing, but maybe 57 percent is actually really a good thing, and it makes you have that conversation.

The iterative reflection of the data sources and the ability to question the meanings of these sources were major analytical activities that both of these team members engaged in during our data analysis meetings. Perhaps the presence of historians helped to facilitate these back-and-forth conversations on the qualitative and quantitative data sources in ways that might not have occurred if team members only had social science research backgrounds (particularly research backgrounds entrenched in either qualitative or quantitative research approaches). It is impossible to know if a team of only social science researchers would have produced similar iterative reflections, particularly since many social science researchers — both quantitative and qualitative — are trained to seek convergence through the triangulation of multiple data sources (e.g., Webb, Campbell, Schwartz, & Sechrest, 1966; Stake, 1995), and are not trained to seek out divergence across data sources to initiate new understandings. Nevertheless, engaging in dissonance via iterative reflections that questioned the meanings of data sources in light of these reflections were important analytical activities that led the team to create meta-inferences and to produce nuanced and comprehensive understandings of the data.

Not All Integrated Data Analyses Are Created Equal: When the Analysis Did Not Facilitate Dialogue

During the conceptualization of the mixed methods study's integrated data analysis, I did not think reproducing the preliminary iterative analysis would preserve the holistic understandings of the case study findings. Essentially, I was hesitant to engage in a variable-oriented approach to the final integrated data analysis. In an effort to explore different integrated approaches, I implemented a variable-oriented approach to assess its usefulness for our study. The team interpreted the variable-oriented approach during the April 2012 meeting. I created a data reduction product that represented both types of data as variables. For the survey, this entailed displaying descriptive statistics for the survey questions (i.e., variables). For the case studies, this involved displaying qualitative data in terms of themes, or codes. Frequencies of occurrences for the codes were displayed for each case study participant. Unlike the preliminary iterative analysis, where the qualitative results were summarized in textual format, this final variable-oriented analysis quantitized the qualitative data to help facilitate an easier comparison of qualitative results to quantitative results (Tashakkori & Teddlie, 1998). These qualitative and quantitative findings were displayed side-by-side and organized by similar issues addressed in both methodologies. Similar to the preliminary iterative analysis, this variable-oriented approach would be considered more iterative than integrative, as neither data source became "integrated" within another data source. The data reduction product I created for this meeting is found in Appendix J. Thematic analyses of this meeting's transcripts and exit interviews are discussed below.

Difficulty in Interpretation: Lack of Alignment Across Results and Loss of Holistic Understandings

In general, the team found it difficult to find connections between the quantitative and qualitative results, with both the content expert and principle investigator explicitly discussing this lack of connection in their final exit interviews. The principle investigator said, “For me, what I think makes this harder is that you can’t map as easily. So while we asked the survey things and tried to code in them in [qualitative] data, it didn’t work to code exactly in the data what we asked in the survey.” Although the team did analyze similar issues across the qualitative and quantitative data sources, the emergent nature of qualitative analysis did not always produce codes that aligned with the questions addressed in the survey. For example, the survey conceptualized historical thinking as including implementing a historical research project, participating in history fair, implementing primary and secondary source analysis, and working on thesis development. While the case study analysis coded these skills, it also coded other historical thinking skills not included in the survey, such as chronological thinking, historical analysis and interpretation, and historical comprehension. So, the side-by-side comparison and iterative analysis of historical thinking skills across the quantitative and qualitative sources data became challenging, because not all historical thinking skills were represented across both data sets. The content expert echoed a similar sentiment, stating that at a conceptual level there was “a clear relationship” between each data type (e.g., each data set dealt with the concept of historical thinking skills); however, the

variable-level analysis produced “parallel data sets,” which made it difficult to find connections.

The content expert and principle investigator also indicated that the variable-oriented analysis decomposed the case study data to the point that these meanings were not accurately captured in frequency counts of code. The content expert claimed, “The case study data is just more complex and harder to unpack.” Similarly, the principle investigator explained:

With qualitative you want to come to [a] holistic understanding, but a variable inevitably breaks thing up into pieces, which makes it hard to make that comparison.... The cluster analysis was easier to align with the cases because [it] included multiple variables.

Other team members also appeared to find the loss of holistic understandings encountered in the variable-oriented analysis problematic in their interpretations of these data. The PD facilitator/leader indicated that the variable-oriented analysis prevented the ability to tell a story with the data, as she explained during the April meeting:

The cluster tended...there were a couple of times where people said this mapped this onto what we were trying to do; this tells a story. Whereas this is almost just the data in comparison to itself.

Many team members in their exit interviews said that we did not have enough time in the meetings to really dive into the variable-oriented analysis. Despite the lack of time to reflect on these results, the team still concluded that the variable-oriented analysis could not have been a stand-alone analysis approach for the study; however, they did feel it would have complemented the case-oriented results. For example, the content expert thought the side-by-side comparison of results on perceptions of students’ abilities complemented the cluster analysis and case study results and enhanced the results of both

methodologies. Or, the variable oriented analysis may have been used in conjunction with the case oriented analysis to highlight the value differences shared by team members with regards to strategies to engage diverse learners and implementation of historical thinking skills and content. Perhaps displaying numerical representations of the “variables” that represent how case study and survey participants utilized strategies to help diverse learners (e.g., ELL and SPED students) in conjunction with the case oriented analyses may have highlighted tensions team members had with these issues, and in the process, may have helped to initiate new insights among stakeholders. Due to time constraints in the meetings, and the need to complete this manuscript, the team did not incorporate the variable-oriented approach to help develop and enhance the case-oriented analysis approach.

The variable-oriented approach could have been beneficial if the team utilized a different methodological approach for the qualitative component of the study. For example, if the team used qualitative methods, rather than the qualitative methodology of case study, the resulting data might have been more conducive to a variable oriented approach. For example, conducting interviews with teachers would have produced results focused on themes or categories, rather than on holistic case narratives. Themes or categories are more easily translated into “variables” that would align to the variables produced in a survey. In this case, the use of a qualitative method would likely produce data results comparable to the traditional variable-oriented results of surveys.

CHAPTER SIX

DISCUSSION

This dissertation's case study of a mixed methods study engaged in integrated data analysis provides insights about issues researchers could consider when engaging in the practice of mixed methods research. These issues include:

- the orientation, or focus, of research questions in mixed methods research questions;
- the utilization of research questions to engage purposefully in methodological decision-making; and
- the consideration of analytical dispositions of researchers that can facilitate integrated data analysis and interpretations of integrated results.

This case study also provides insights that can inform the continuing development of the theory of mixed methods research. These include:

- reconsidering the issue of weight, or priority, of methods or methodologies in studies;
- issues to consider in the development of a framework for integrated data analysis decisions; and
- issues to consider when conceptualizing frameworks for developing meta-inferences in mixed methods research.

Insights into the Practice of Mixed Methods Research

The findings from this case study have potential implications for the practice of mixed methods research. These findings highlight the role of research questions in mixed methods studies, and the analytical dispositions mixed methods research should consider adopting when engaging in integrated data analysis.

Substantively Oriented Versus Methodologically Oriented Research Questions

Drawing upon the work of Creswell (2009), this dissertation aimed to provide methodologically oriented research questions by developing separate qualitative and quantitative questions that would preserve and honor the different perspectives of the case study and survey methodologies. In addition, the dissertation created a mixed methods research question that would highlight the mixed methods purpose of the study; a purpose that highlights the methodological reason for using both methodologies.

This mixed methods exemplar study, however, was not guided by the proposed set of methodologically oriented research questions. Instead, the team developed two overarching, substantively oriented questions that implied, and did not explicitly state, the purpose for using qualitative and quantitative methodologies. Developing two separate qualitative and quantitative questions that highlight their respective methodological approaches makes sense for a mixed methods study. After all, the intent is to use specific qualitative and quantitative methodologies within a single study. Our team, however, was not necessarily thinking in such a dichotomous and methodological manner during the early planning phases of our study. Instead, the team was focused on the substantive issues they wanted to learn about, and developed research questions that addressed these

issues. This meant that the mixed methods research question that focused on the purposes for using a mix of methods—and not on the substantive issues—did not resonate with the team. An outside audience may find such a mixed methods research question helpful in understanding the purpose of utilizing both methodologies; however, this question was not relevant to the team's substantive needs.

The strong substantive focus of the research questions may have been due to the fact that two of the team members were not trained in social science research. This strong focus also may have been because we developed this study within a context of an on-going program evaluation that provided the team with a predeveloped quantitative component (the annual teacher survey). Because of the preexisting survey, the team already had a sense of the ways this methodology would address our research needs. Regardless of how the study's context influenced our development of research questions, the focus on substantive, rather than on methodological, issues in the research questions influenced how we planned and developed our mixed methods study. Namely, these questions guided the integrative use of both methodologies. As Greene (2007) emphasized, "Social inquiry begins with a substantive intent or purpose and a substantive set of questions. Methodology is ever the servant to purpose, never the master" (p. 97). To this end, researchers in general might want to consider developing substantive oriented research questions, determine if a mix of methods is needed to address these questions, and if so, use the questions to inform decisions about the implementation of their study's methodologies.

Separate decision-making process informed by research questions. As this exemplar study demonstrated, the planning of mixed methods research studies, particularly those that attempt to integrate methods, requires some degree of decision-making to ensure the mix of methods addresses the research questions in an integrative way; simply developing research questions does not necessarily guarantee an integrative use of methodologies. This decision-making process is a separate step in the development of mixed methods studies that researchers need to engage in, or at least consider engaging in, to determine how methodologies will address their substantively oriented research questions. If such research questions guide the development of mixed methods studies, then mixed methods researchers may not need to expend effort at the beginning of the study developing mixed methods research questions: issues of methodology would be addressed through a separate planning and decision-making process guided by the substantive issues of the study. In this exemplar mixed methods study, the mixed methods research question did not help provide the team with direction on how to use the case study and survey methodologies; it was the substantive oriented research questions that guided methodological planning.

Analytical Dispositions for Integrated Data Analysis: Embracing Dissonance Through Iterative, Inquiry Oriented and Respectful Dialogues

Although the mixed methods field historically privileged the corroboration of qualitative and quantitative results, it is beginning to value the importance of divergence, or dissonance, in results (Teddlie & Tashakkori, 2010). This dissertation's paradigm stance of a mixed methods way of thinking honors and embraces dissonance as a way to

initiate deeper understandings of the complexities of social phenomenon (Greene, 2007).

This exemplar mixed methods study demonstrated that embracing dissonance in qualitative and quantitative results provided opportunities to reflect on these differences, which led to more nuanced and comprehensive understandings. Embracing dissonance may require designing studies for the mixed methods purpose of initiation wherein researchers use methods or methodologies “that are significantly different from one another in stance, form, and perspective” (Greene, 2007, p. 103). For example, designing a mixed methods study that uses a survey to produce generalized understandings and case studies to create contextualized understandings. This purpose of using opposing methodologies is to create dissonance in results and embrace the dissonance, rather than reject it because corroboration was not attained (Greene, 2007).

Although embracing dissonance is a useful mindset, or analytical disposition, mixed methods researchers should be aware when analyzing and interpreting qualitative and quantitative results, dissonance alone does not necessarily lead to more comprehensive understandings. This study suggests that the generative insights that can emerge from dissonance may require a researcher to engage in inquiry oriented, iterative dialogue on the differences between qualitative and quantitative results. In this exemplar study, our team produced generative insights by oscillating back and forth between the qualitative and quantitative results, while constantly questioning the results along the way. Our ability to engage in iterative reflections and to question the meaning of both data sources occurred, in part, because of the mental models of the two team members whose historical research background provided them with the analytical skills to engage

in dissonance in a reflective, iterative manner. Chapter One outlined potential barriers to engaging in integrative data analysis, such as lack of exemplars, lack of integrated designs, insufficient attention to research purposes, and insufficient attention to research questions. Although this study demonstrated the benefit of embracing dissonance through iterative, inquiry oriented and respectful dialogues, it may also have demonstrated that this analytic disposition may be another barrier to integrated data analysis given social science research emphasis on convergence. It remains to be seen if current analytic tenets of quantitative and qualitative data analysis provide researchers with the necessary analytical abilities and mindsets to actively pursue, explore, and understand dissonance.

In addition to the team's ability to engage in an inquiry oriented, iterative dialogue of our data results, the team also demonstrated respect for the information generated by both methodologies. The team did not appear to share an either/or view of the data, or assumed that one type of data was better than another. In other words, the team resisted choosing a particular epistemological stance, and by extension methodological approach, during data analysis and interpretation stages. Greene (2007) emphasized that engaging in dissonance does not mean choosing epistemological sides, but rather engaging in a conversation about the tension that emerges from the different types of knowledge. In fact, it was the team's ability to place equal priority, or weight, on the qualitative and quantitative data that facilitated the production of insights that would not have otherwise been generated. Teddlie and Tashakkori (2009) assert that the evolution of mixed methods data analysis will rest on researchers' understanding of data less in terms of dichotomous qualitative (words) data or quantitative (numbers) data, but

more as “units of information that happen to be initially generated in one form or the other” (p. 283). Our team was able to transcend narrow perspectives of qualitative and quantitative data by viewing these data as different types of information that provided different perspectives on pedagogical content knowledge and ambitious teaching. As mixed methods researchers embark on their integrated data analysis and the interpretation of their results, they should consider transcending traditional social science dichotomous views of qualitative and quantitative research and exaltation of convergence in order to capitalize on the generative potential of dissonance in the data that emerges from an inquiry oriented, iterative reflection of results.

Insights into the Theory of Mixed Methods Research

Donna M. Mertens, current editor of the *Journal of Mixed Methods Research*, posed the question, “Is mixed methods research in its infancy, adolescence, or maturity?” (Mertens, 2010; p. 3); however, she did not provide an answer to this question. The last 30 years of scholarship about mixed methods research has produced some degree of cohesion of ideas about this type of research, but Mertens emphasized the importance of “keep[ing] the spirit of divergence alive,” and she welcomed diverse viewpoints of mixed methods research as the field continues its theoretical development. To this end, this exemplar mixed methods study might provide additional insights into current, and evolving, theoretical issues that will contribute to the still-evolving theoretical landscape of mixed methods research. These insights are now discussed.

Assigning Priority to Methodologies: Intersection of Methodology and Mental

Models

Greene (2007) emphasized that a defining characteristic of a mixed methods study design is the priority given to a particular method: “[A] mixed methods study with one primary and one supplementary methodology (or set of methods) is quite different from a study in which the various methodologies or sets of methods are granted relatively equal weight and status in the study (p. 119).

Some scholars contend that the choice of priority informs decisions about the emphasis researchers place on the qualitative and quantitative components during all phases of a research study, including analysis (Creswell, Plano Clark, Gutmann, & Hanson, 2003). Although my intent of this exemplar study was to place equal emphasis on the qualitative and quantitative components during all phases of the study (e.g., development of research questions, sampling decisions), this intent was not realized during the planning phases of the study. The team often prioritized qualitative ways of thinking with their strong focus on the development of the case studies during the early planning phases of the study, which may have caused us to miss potential opportunities to discuss how to integrate quantitative approaches. I continued the qualitative emphasis with my decision to take a case-oriented approach for the final integrated data analysis in order to preserve the holistic interpretations of the case study results. Other points during the study, however, the team did place equal weight on the methodologies, particularly during the final integrative analysis and interpretations stages. Despite the equal weighting of methodologies during these stages, this study could be classified as a

qualitative-dominate study given the overall emphasis on the qualitative component and the thinking that guided the development of the study.

The role of epistemology played an important role in the early planning stages of the study, with the team's qualitative orientation strongly influencing the initial conceptualizations of the study. This strong qualitative focus was further facilitated because the study was designed within an existing evaluation with a predeveloped quantitative component. However, as just mentioned, the qualitative aspects did not dominate every stage of the research process. This exemplar study demonstrated that prioritization of methodologies may not be a simple methodological decision that is uniformly carried throughout the course of the study. In this study, decisions of priority intersected with the mental models of the researchers involved. We were a qualitatively oriented team with a variety of experiences: practical experiences of creating and running programs, social science research experiences, and historical research experiences. Our decisions to weight methodologies in the manner we did also reflected our mental models. We as a team, however, never explicitly discussed the appropriateness of prioritizing the methodologies in the manner that we did. This lack of explicit acknowledgement or discussion of priority might indicate a poorly conceived mixed methods study. Or it might indicate that decisions about weight were complex ones, not simple methodological ones that took into account not only the context of the study, but the mental models of the researchers involved.

The intersection between methodological decisions on priority and mental models does suggest a more complex decision-making process, which needs to be made explicit

to a team and outside audiences to determine the extent to which these decisions appropriately address a study's substantive research questions.

Finding the Direction for Analysis: Methodological Considerations

Teddlie and Tashakkori (2010) questioned the extent to which data analysis in mixed methods studies are dependent on research designs, asking, "Are MMR [mixed methods research] data analysis issues separate from research design issues, or are the two processes inextricably bound?" (pg. 26). This dissertation's exemplar mixed methods study suggests that, at least for some mixed methods studies, design issues do not inform directions for analysis. This study's design could be thought of as a sequential exploratory design wherein the qualitative component was implemented first to inform the quantitative component. Within this design type, qualitative data analysis helps to inform subsequent quantitative analysis (Creswell & Plano Clark, 2007). This exemplar study, however, did not strictly conform to this study design because the quantitative component of the study already was developed, making it difficult for the emergent qualitative issues to inform the data analysis of an already established quantitative component.

Regardless of the degree to which this exemplar study adhered to this particular mixed methods design typology, the sequential research design did not inform final integrated data analysis decisions. Despite the fact the team took great effort to integrate the methodologies—both through instrument development and preliminary iterative data analysis—the integrated design of this study did not influence the final integrated data analysis. Nor did the substantive purposes, mix methods purposes, or research questions

provide any guidance how to approach the final integrated data analysis. It was the methodologies used in the study, specifically the case study methodology that ultimately influenced the approach of the final integrated data analysis. By drawing on the mixed methods data analysis framework proposed by Onwuegbuzie, Slate, et al. (2009), I was able to conceptualize the final integrated data analysis in terms of a case oriented analysis in order to produce survey results that would align with the holistic results of the case studies. While this framework conceptualizes mixed methods data analysis in terms of variable oriented and case oriented analyses, it does not explicitly incorporate methodology into its framework. This framework's lack of explicit consideration of methodology is not necessarily a shortcoming. Nor is the idea of utilizing research design as a way to inform data analysis decisions. This exemplar mixed methods study suggests, however, that current frameworks for data analysis in mixed methods research might not necessarily incorporate all possible issues to consider when making decisions on how to approach data analysis. Namely, this study suggests that data analysis decisions might involve considering how a study's methodologies can influence approaches to data analysis. Teddlie and Tashakkori (2010) questioned, "Can the diverse indigenous and adapted MMR [mixed methods research] data analysis procedures be incorporated within a single mixed methods framework, or are the criteria that practitioners of MMR have used to create their mixed methods analysis typologies too divergent for a single framework?" (p. 27). It remains to be seen if the field can develop an all-inclusive framework to inform data analysis decisions; however, this exemplar study helps provide

mixed methods researchers with another way to conceptualize their approach data analysis.

Developing Meta-Inferences and the Role of Dialogue

Currently, the field of mixed methods is grappling with exactly how to create meta-inferences. As discussed in Chapter Two, very few studies have focused on the ways to develop conclusions and inferences based on mixed methods analysis (Greene, 2007). Teddlie and Tashakkori (2010) recently posed the question, “How do we make inferences on the basis of the results of QUAL [qualitative] and QUAN [quantitative] analyses of our data?” (p. 28). To help facilitate the development of meta-inferences, they recommend that researchers keep research purposes and questions in the foreground when analyzing data and asking themselves questions such as “What does this mean?” or “What does this tell me about the behavior or event under investigation?” (Teddlie & Tashakkori, 2009; 2010, p. 28). This study provides the field with general approaches to how we developed meta-inferences. It is important to note that our team did not explicitly keep the research questions and purposes in the foreground, which could be considered a weakness. The team did, however, compare and contrast qualitative and quantitative data sources to better understand the meaning of results, particularly when they conflicted with each other. Also, we took into account the analytical limitations of particular types of analyses (cluster analysis) to understand the meaning of results across different types of data. In addition, the team drew upon program evaluation experiences and data to help inform our interpretations. Lastly, although the team did not ask the specific questions suggested by Teddlie and Tashakkori, we often questioned the meaning of results,

particularly when they conflicted with each other. These approaches do not provide an inclusive framework for developing meta-inferences; however, they provide some insights into how one team of researchers interpreted their data.

As noted in Chapter Five, I did not specifically engage the team in any specific line of questioning as we interpreted our final results; our meta-inferences organically emerged from the dialogues we had with each other about the data. As Chapter Five highlights, these dialogues can emerge in complex ways, and this complexity might make identifying specific procedures to develop meta-inferences challenging. This is not to say more research should not be done to better understand how meta-inferences are developed; more research might lead to a common set of practices. The field, however, might also benefit from examining the role of dialogue in producing meta-inferences. Understanding how dialogue emerges within a team of researchers warrants attention since some scholars recommend that mixed methods studies be conducted with a team of researchers who have competencies in qualitative and quantitative methodologies (Teddle & Tashakkori, 2003). In these cases, a group of people with different mental models will come together to engage in a dialogue about results—and these mental models and dialogues might conflict with one another. Therefore, it might be beneficial to understand what constitutes effective dialogue. Perhaps drawing on the work of program evaluators and scholars, who have discussed the role of dialogue in evaluation research (e.g., Amba et al., 2001; Greene, 2001; Schwandt, 2001), might help elucidate the important role dialogue plays as a vehicle through which meta-inferences are created. These scholars assert that dialogues are an opportunity to exchange ideas in an inclusive

and respectful manner, which requires all individuals involved to be willing to understand each other's perspective in order to increase their overall understanding (Amba et al., 2001). This approach to dialogue aligns with a mixed methods way of thinking, where different mental models are respectfully engaged dialogically. As the mixed methods field continues to develop approaches to producing meta-inferences and ways to judge their quality, it might be important to understand the quality of the dialogue that produced such inferences.

Limitations

This case study of a mixed methods study engaged in integrated data analysis provided both practical and theoretical insights for the fields of mixed methods research. These insights emerged from a small-scale mixed methods study, which was designed within an on-going program evaluation; because of this, this dissertation's insights might not be applicable to all types of mixed methods studies, like larger-scale mixed methods studies. Perhaps these studies need more methodologically oriented research questions in order to manage the complexity of implementing a study of a larger magnitude. Perhaps engaging in inquiry-oriented, iterative dialogue works well for a small-scale mixed methods studies with a small team of researchers, but may not translate to a larger team of researchers who are working with more and larger datasets. Research on the development of large-scale mixed methods studies might be warranted to understand how these studies' inquiry and methodological components influence data analysis decisions, and how meta-inferences are created. In addition, more research is warranted for program

evaluations and action research studies to better understand how the inquiry and methodological components of these studies influence data analysis decisions.

Also, this mixed method study was created within the context of a program evaluation. The development of inquiry and methodological components of this study were greatly influenced by pre-existing understandings of evaluation data and data collection instruments. In addition, our interpretation of this study's data and results drew upon our experiences with the program as well as evaluation data and findings. Therefore the context of the program evaluation greatly influenced the manner in which we planned and conducted this study.

Moreover, this mixed methods study was created by a team of qualitatively oriented researchers. This study demonstrated how the role of epistemology influenced the way the study was designed and implemented. The integration of qualitative and quantitative approaches was sometimes challenging because of the team's epistemological preferences; however, this study also demonstrated the possibility of integrating qualitative and quantitative approaches in a qualitatively dominated study. Sometimes this integration was intentionally accomplished (e.g., through data collection instruments) and other times it emerged given team members mental models (e.g., data analysis and interpretation). It remains to be seen how a similar study would have unfolded if the team of researchers had both qualitative and quantitative epistemological preferences. A closer examination of the role of epistemology in the design and implementation of mixed methods studies may help better understand how to facilitate

integration of qualitative and quantitative approaches among a team of researchers who align with the same or different epistemological stances.

In addition, this dissertation's insights emerged from an exemplar mixed methods study that had an exploratory research objective. Perhaps studies with an explanatory research objective would benefit from creating mixed methods research questions at the outset of the study. The research issues of these studies are typically identified a priori, and as such, might more easily be incorporated into a methodologically oriented mixed methods research question, which can provide a research team sufficient guidance to implement their study. Although the inquiry components of this exemplar study did not influence final integrated data analysis decisions, perhaps this component would have more of an impact on data analysis choices in an explanatory study.

Lastly, I, as a novice mixed methods researcher, often led the planning processes of this exemplar study. It is unknown how a more experienced mixed methods researcher would have led and facilitated the development of this study. A more experienced researcher might have created opportunities for more quantitative reflection during the early planning stages of the study, or had more effective ways to facilitate dialogue among data results. Or, a more experienced mixed methods researcher might have generated different insights about the practice and theory of mixed methods based on the implementation of this particular mixed methods study. As these aforementioned issues illustrate, this dissertation study does have limitations and are important considerations for mixed methods researchers to take into account when interpreting these findings and applying them to their own research practices.

APPENDIX A
INFORMED CONSENT FORM

CONSENT TO PARTICIPATE IN RESEARCH

Project Title: *Mixed Methods Research and Integrated Data Analysis*

Researcher(s): *Daniela M. Schiazza*

Faculty Sponsor: *Leanne Kallemeyn*

Introduction and Background to this Research Study

You are being asked to take part in a research study being conducted by Daniela M. Schiazza for a dissertation under the supervision of Dr. Leanne Kallemeyn in the Department of Research Methodology in the School of Education at Loyola University of Chicago.

You are being asked to participate in this dissertation study because you are member of the evaluation team that is designing and conducting a mixed methods study to better understand pedagogical content knowledge of teachers participating in the American Dreams project.

Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:

The purpose of this dissertation study to reflect upon the development and implementation of a mixed methods study that uses integrated data analysis techniques.

Procedures:

If you agree to be in the study, you will be asked to:

- Allow me, Daniela M. Schiazza, to **take notes and audio-record discussions during evaluation team planning meetings** that pertain to the development and implementation of the mixed methods study on pedagogical content knowledge of teachers participating in the American Dreams project. Only discussions related to this study will be audio-recorded. Discussions not related to the study will not be audio-recorded. If at any point during a meeting you would like to stop the audio-recording, please let me know and I will stop the recording. The purpose of recording and taking notes during evaluation team meetings is to keep record of the team's inquiry and methodological decisions of the study on pedagogical content knowledge.
- Participate in 5 to 10 minute **exit interviews** after evaluation team planning meetings. The purpose of these brief interviews is to summarize your understandings of the major issues discussed during evaluation team planning meetings. These interviews will not be audio-recorded, but interview notes will be taken during the interviews.
- Participate in **one 60 minute interview** with Daniela M. Schiazza. The purpose of this interview is to discuss your experiences about developing and implementing this mixed methods study on pedagogical content knowledge of teachers participating in the

American Dreams project. The interview will be scheduled at times that are convenient for you, the participant, such as before or after work, during lunch, either at your place of work or at an off-site location. The interview will be audio-recorded and notes will be taken during the interview. Following the interview, you will receive a written summary of the interview in order for you to review and provide comments.

Risks/Benefits:

There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life. A benefit of participating in this dissertation study is you will provide other mixed methods scholars with valuable information about doing integrated data analysis. Currently, the field of mixed methods research provides scholars little guidance on how to develop and implement mixed methods study that engage in integrated data analysis. Providing the field with reflective insights about your experiences may help inform the work of other mixed methods scholars.

Confidentiality:

- Names or other identifying information will not be recorded in the observation or interview notes or transcriptions. The final write-up of results for the dissertation will use pseudonyms to help protect your anonymity.
- Please keep in mind your anonymity cannot be guaranteed if the results from this dissertation are presented to a wider audience *and* you are one of the co-authors, or presenters, of this information (e.g., a co-author on an article for an academic journal, or a co-presenter on a paper presented at a conference.)
- The digital audio-recordings, and any related notes, will be stored on a password protected computer. Only I, the researcher, will have access to any study data. The audio-recordings will be erased within five years of the dissertation's final approval.

Voluntary Participation:

Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free not to answer any question or to withdraw from participation at any time without penalty. Your decision not to participate will not affect the development, or implementation, of the evaluation team's study.

Contacts and Questions:

If you have questions about this research project or interview, feel free to contact Daniela M. Schiazza at dschiaz@luc.edu or 312-915-6378, or feel free to contact the faculty sponsor Leanne Kallemeyn at lkallemeyn@luc.edu or 312-915-6909.

If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

Statement of Consent:

Your signature below indicates that you have read the information provided above, have had an opportunity to ask questions, and agree to participate in this research study. You will be given a copy of this form to keep for your records.

Participant's Signature**Date**

Researcher's Signature**Date**

APPENDIX B

EXIT INTERVIEW PROTOCOLS

Exit Interview Protocol: Planning Meetings

1. Please describe the key takeaways you learned about our discussion.
2. Did you learn anything new or surprising?
3. Did anything we discussed not align with your understandings or interpretations of observations? Was there any conflict or dissonance between what others views and yours?

Exit Interview Protocol: Integrated Data Analysis Meeting, February 29, 2012

1. What new insights to you gain from your initial read of the paper?
2. What did you learn about this group of teachers, in general, from the cluster analysis results?
3. What did you learn interesting about looking at the cluster analysis in relation to the case studies? What were your initial thoughts about this initial attempt of situating the cases within the cluster analysis?
4. Do you think that your understanding of ADP teachers was enhanced by looking at the case studies and cluster analysis together? Or, do you think just looking at the case studies and survey data separately was sufficient?
5. What, if any, new insights did you gain from our process of looking at the case studies and cluster analysis together? Did you find this helpful in addressing our study's needs?

Exit Interview Protocol: Integrated Data Analysis Meeting, April 9, 2012

1. At the last meeting we discussed the placement of CP in cluster one. What insights did you have, or gained, from our discussions about CP placement in this cluster?
2. What were some of your initial thoughts about looking at the new cluster analysis results that included graduate education? Were they helpful or not in describing ADP participants in general? How did these results relate to the case study results (how did case study results help you understand these cluster results)?
3. What, if any, new insights did you gain from our process of looking at the case studies and new cluster analysis results together?
4. Did you find the variable-oriented approach helpful?
5. What were some of the key takeaways, or major issues that you gained, from this discussion?

APPENDIX C

SEMISTRUCTURE INTERVIEW PROTOCOLS

Semistructure Interview Protocol

1. Please tell me briefly a little bit about your professional experience – from when you were a history teacher to where you are today. Why did you become a history teacher and why you make your subsequent career choices?

Your values and orientation towards research

1. Thinking about social science research as existing on a continuum, where on one end there is quantitative research and on the other end there is qualitative research, where are you located on this continuum? Why?
2. Please describe your experiences, if any, working in a research or evaluation team that utilized both quantitative and qualitative methods. What was the purpose of this study? Why did it utilize both types of approaches?
3. What were your motivations to conduct this current mixed methods study? What did you hope to gain from the study?

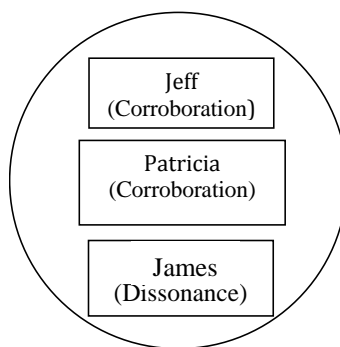
Process of conducting the study

4. In the planning phases of the study in September through November of 2010, our discussions primarily focused on designing the case studies, with little discussion or reflection on the survey or quantitative aspects we may have wanted to explore. Looking back, do you think it would have been beneficial to discuss the content of the survey, or other quantitative issues we may have wanted to address, during these initial planning discussions?
5. During the course of the study, did you ever question our approach to the case studies (e.g., sample selection, interview questions, etc.) or what was addressed on the survey? Why?
6. (*For the content expert and program provider only*): You have both a history background and a social science background. In what ways, if any, do you think your experiences as a history teacher and social science researcher helped in how you interpreted the data? Did having a historical background, or experience in historical research, influence how you viewed the data?

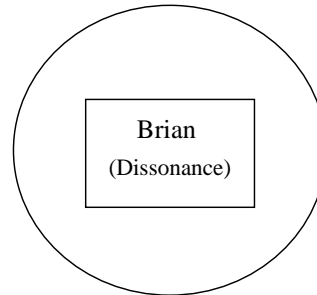
Outcomes of conducting the study

7. In general, group feedback indicated that the integrative analyses we did in April of 2011 (i.e., when we looked at preliminary results in the Excel file), February 2012, and April of 2012, helped people gain a more comprehensive understanding of ADP teacher practices.
8. What did you learn from these integrated analyses that you do not think you would have been learned if we analyzed each data source in isolation?
9. In what ways, if any, did engaging the integrative analysis of qualitative and quantitative results help you feel more comfortable with using both methods?
10. What was not answered by the final integrated analysis (i.e., the analyses that took place in February and April of this year)? What did you want to learn more about that was not addressed by these analyses?
11. *(Asked team members their thoughts on the diagram as a visual to explain outcomes of the integration of the qualitative and quantitative data).* It seemed that Jeff and Patricia explained all, but not all of the teachers in Cluster One. James explained some, but all of the teachers in Cluster One. With Brian, we tried to make sense of Cluster Three as well as make sense of Andrew being placed in Cluster Three. Do you agree with these statements? Or did the integration of the cases in the cluster mean something different for you?

Cluster One Teachers



Cluster Three Teachers



11. What challenges, obstacles, or difficulties did you encounter, if any, when we analyzed the case study data and cluster analysis integratively?
12. This mixed methods study addressed the following substantive purposes and research questions. In what ways did the study address these purposes and questions? In what ways did it not address these purposes and questions?

Purposes:

- Understand the complex phenomenon of pedagogical content knowledge and ambitious teaching by examining: (a) how teachers enact pedagogical content knowledge and ambitious teaching and (b) how teacher participation in the ADP program influenced pedagogical content knowledge and ambitious teaching
- Heighten the awareness of pedagogical content knowledge and ambitious teaching across different groups of people includes: (a) program developers, (b) department chairs/curriculum directors, (c) history educators.

Research questions:

- What classroom practices related to historical content and skills do teachers enact when teaching U.S. History?
 - Why do ADP teachers decide to use particular content, skills, and resources in their classroom instruction?
13. What did you learn from the study's findings, if anything, that will help inform your professional endeavors in the future?

APPENDIX D
SCHEDULE OF DATA COLLECTION

Schedule of Data Collection

Data Collection	Time Frames
Initial interviews with teachers	December 2010 – January 2011
Classroom observations	December 2010 – May 2011
Preliminary analysis of initial interviews	December 2010 – January 2011
Additional survey questions developed	January 2011 – February 2011
Annual teacher survey	March 2011
Preliminary iterative analysis	April 2011
Final interview protocol developed	April 2011
Conducted final interviews	May 2011
In-depth analysis of case study data	June 2011 – January 2012
Cluster analysis of survey data	January 2012
First integrated data analysis meeting	February 2012
Second integrated data analysis meeting	April 2012

APPENDIX E
INITIAL INTERVIEW PROTOCOL

**American Dreams Teaching American History Project
Academic Year 2010-2011
Teacher Interview Protocol
Initial Interview**

1. Tell me a little bit about yourself. What is your background in education?
[PROBES: Degrees, college/university attended, teaching positions, how long teaching in general, how long teaching social studies, courses typically taught/teach, courses currently teaching (AP vs. regular-level), currently teaching the courses you would like to teach?]
2. How would you respond to a student who asked, “Why should we study history?” What would you tell your students what it means to study history? [PROBES: What do you like about studying history? What does it mean to you to teach history? Is your approach to teaching history more focused on imparting content or skills? Does this approach change depending upon the type of course taught?]
3. There is always more content and skills to teach than what you have time to address during class. How do you decide what to focus on? What are your priorities in teaching history? [PROBE: concrete examples]
4. What are the characteristics of the students in your social studies courses?
[PROBE: ethnically/racially diverse, ELL students, SPED students].
 - a. In general, how would you describe your students’ level of enthusiasm about studying history? How would you describe their ability to learn historical content and skills?
 - b. In general, what expectations do you have for your students?
5. What helps to support your teaching of history (e.g., classroom, department, school, district, other)? What more support would you want? What inhibits how you would like to teach, or are teaching, history to your students? [PROBES: opportunities for teacher collaboration, use of assessments, support from librarians, support for changing teaching practices, support from department chairs/administrators]
6. Based on our records, you have participated in the following ADP professional development opportunities. [SHOW LIST] Which of these opportunities did you

feel you learned the most from? Challenged you the most to develop your teaching practices? Changed your views about teaching historical content? Skills? Pedagogical strategies?

7. Thinking about what you learned and were exposed to during ADP professional development, what have you shared with your students and/or integrated into your classes so far this year, or plan on integrating at some point the course of the year? Why did you decide to share and integrate these particular issues? *[Probe for concrete examples]* Would you say you are sharing and integrating more content-oriented issues, historiography-oriented issues, or pedagogical-oriented issues?
8. *[If the teacher has already shared or integrated something ask the following:]* You mentioned *[insert example of sharing or integrating provided in Q7]*. How did this go? Was it successful? Why or why not? Would you change anything the next time you do the lesson and why?
9. What days/times of year would be most appropriate to observe your classroom, if we want to see examples of you integrating what you have learned through ADP into your classroom? Translating material for students?

APPENDIX F
ANNUAL TEACHER SURVEY

Teaching American History: American Dreams Project (ADP) Year 3³**1. What level do you teach?**

- ☐ Middle school
- ☐ High school

2. (*High school teachers online*). What classes of U.S. History (or closely related classes) do you currently teach? (Please check all that apply.)

- ☐ U.S. History Regular
- ☐ U.S. History Accelerated or Advanced Placement
- ☐ U.S. History Transitional
- ☐ U.S. History Special Education
- ☐ U.S. History ESL
- ☐ Contemporary U.S. History
- ☐ Urban Studies
- ☐ American Studies
- ☐ American Studies Transitional
- ☐ Do not currently teach U.S. History

3. What classes do you currently teach? (Please check all that apply.)

- ☐ Social studies
- ☐ Reading/language arts
- ☐ Math
- ☐ Science
- ☐ English as a Second Language
- ☐ Self-contained Special Education
- ☐ Other (please specify): _____

4. During what school years have you participant in, or will have participated, in, any of the American Dreams Project professional development activities? (Please check all that apply.)

- ☐ 2008-2009
- ☐ 2009-2010
- ☐ 2010-2011

³ The survey was originally administered online via SurveyMonkey.

5. How many of the following types of events have you participated in over the past three years?

Study groups: _____ (number)

One-day seminars: _____ (number)

Summer institutes: _____ (number)

6. Are you participating in the case studies (i.e., interviews and classroom observations) the American Dreams Project evaluation team is conducting this school year (2010-2011)?

☐ Yes

☐ No

7. What activities did you participate in, or plan on participating in, during the third year of the American Dreams Teaching American History Grant? (Please check all that apply.)

☐ American Dreams post 1877: Fighting for Democracy. Summer Institute (July 12—30, 2010)

☐ Women, Gender, and the Constitution after 1900 Study Group (Fall 2010)

☐ History on the Go – Latino Chicago Bus Tour, sponsored by the Chicago Metro History Education Center (Fall 2010)

☐ Curriculum Articulation, Part II Study Group (Fall 2010)

☐ *Brown v. Board Education* and the Battle for Equal Education, sponsored by the Constitutional Rights Foundation Chicago (Winter 2010)

☐ War, Civil Liberties, and the Constitution after 1900 Study Group (Winter 2010)

☐ Becoming a U.S. Citizen, sponsored by the National Archives at Chicago (Winter 2010)

☐ Teaching U.S. History to Special Education Learners Study Group (Spring 2010)

☐ Reading History: Building Literacy in History and Social Studies Classes Study Group (Winter 2010)

☐ Focusing on World War II, Baby Boomers, and an American Dream, sponsored by the Library of Congress Teaching with Primary Sources Program at Loyola University Chicago (Spring 2010)

☐ Newberry Teachers' Consortium Seminar

☐ I did not participate in any Year 3 activities.

8. Did you major in History with a focus on U.S. History as an undergraduate?

☐ Yes

☐ No

9. Do you have a Master's Degree (or greater)?

- ☐ Yes, I have a master's degree or higher with a focus on U.S. History
- ☐ Yes, I have a master's degree or higher in non-U.S. History
- ☐ No, I do not have an advanced degree

10. In what academic department do you teach?

- ☐ Social Science/Social Studies
- ☐ Special Education
- ☐ English as a Second Language
- ☐ Other (please specify): _____

11. This past year did you require at least some students to do a historical research project?

- ☐ Yes
- ☐ No

12. If you did require students to complete a historical research project, check all of the characteristics that applied to a typical project that students completed.

- ☐ Included a thesis
- ☐ Integrated historical evidence from secondary sources
- ☐ Integrated historical evidence from primary sources

13. During this school year, what percentage of students that you had in history class(es) were assigned a research project and actually complete/will complete a research project? (Please check one.)

- ☐ Less than 10%
- ☐ 10—19%
- ☐ 20—29%
- ☐ 30—39%
- ☐ 40—49%
- ☐ 50—59%
- ☐ 60—69%
- ☐ 70—79%
- ☐ 80—89%
- ☐ 90—100%

14. In the past school year, did you participate in the History Fair sponsored by the Chicago Metro History Education Center? (Please check one.)

- ☐ Yes, all students in my class(es) participated
- ☐ Yes, at least some students in my class(es) participated
- ☐ Yes, I served as a judge, and my student did not participate
- ☐ No

15. How often do you use primary sources in the following ways in your class(es)?

	Not at all, rarely	Few times a year	Monthly	Weekly	Daily
Illustrations for material I am covering in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Content-area reading activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Individual student analysis activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group analysis activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research projects/papers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify): _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. How often do you use secondary source analysis in your class(es)? (Please check one.)

- ☐ Not at all or rarely
- ☐ A few times a year
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

17. In the past school year, have you integrated area historical resources into your classroom instruction? (Please check one for each item.)

	Yes, for the first time or in a new way	Yes, and have also done so in prior years	No, but aware of collection/ resource	No, and not aware of collection/ resources
Newberry Library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
McCormick-Tribune Freedom Museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

National Archives and Records Administration Great Lakes Region	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chicago History Museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
University of Illinois at Chicago Daley Library Special Collection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Illinois Labor History Society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Constitutional Rights Foundation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encyclopedia of Chicago	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
State Archives Source Boxes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chicago Metro History Education Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Harold Washington Library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DuSable Museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Puerto Rico Cultural Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. If you answered yes to any of the above items, how have you integrated the use of area historical resources into your teaching of American history?

--

19. The Curricular Articulation Study Group that met during the 2009-2010 and 2010-2011 school year identified the following skill areas for U.S. History/Social Studies. For each skill area, please indicate the extent to which you currently emphasize it when teaching U.S. History/Social Studies.

	Routinely	Occasionally	Rarely, or not at all
Reading comprehension: basic reading skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reading comprehension: reading and analyzing sources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note taking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing a thesis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Detecting bias	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Please describe your primary goals as a history/social studies teacher when teaching your classes. For example, what do you want your students to gain, or learn from your classes and why? What are your priorities in teaching history/social studies and why?

21. Please indicate which one of the following statements best describes the primary objective(s) of the last lesson you taught. (Please check one.)

- ☐ The primary objective was to have students learn about historical content.
- ☐ The primary objective was to have students learn about content, but also to develop skills (e.g., research skills, historical thinking, making an argument, reading comprehension, writing skills, etc.)
- ☐ The primary objective was to have students develop skills (e.g., research skills, historical thinking, making an argument, reading comprehension, writing skills, etc.), but also to learn about historical content.
- ☐ Other (please specify): _____

22. How do you organize your teaching of history/social studies?

- ☐ Thematically
- ☐ Chronologically
- ☐ Thematically and chronologically
- ☐ Other (please specify): _____

23. Please select the approach you most often use to make history relevant to your students. (Please check one.)

- ☐ Provide students to ability to select particular topics, projects, and/or assignments that align with their interests
- ☐ Relate historical events to pop culture (e.g., movies, music, books, ect.)
- ☐ Discuss, or demonstrate, the connections between historical events and students' cultural backgrounds
- ☐ Discussion, or demonstrate, the ways in which historical relate to current events, community, and/or family issues that may be relevant to students' lives

○ Other (please specify):

24. Please tell us how much you agree, or disagree, with the following statements regarding the students in your history/social studies classes.

	Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
In general, most of my students are interested in learning what they are asked of in class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, most of my students really try to learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For the most part, many of my students are able to meet or exceed my expectations of them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, most of my students are capable of going to college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Thinking about this school year, please indicate how often the following occurs with you and your colleagues. (Please note statements related to professional development refer to professional development in general and not professional development specific to the American Dreams Project.)

	Weekly	Monthly	Few times a semester	Few times a year	Not at all, rarely
Providing feedback to colleagues on ways to improve their classroom practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussions about how well strategies, resources, lessons, units, etc., worked in our classes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussions about ways to assess student learning of content and skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sharing what we learned from	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

professional development activities with one another					
Sharing our lesson plans and/or units with one another	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussions about what we think helps students learn the best	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working together to create new lesson plans or units based upon what we learned from professional development activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Thinking about your participation in the American Dreams Teaching American History Project over the past three years, please rank the top three ways this project has most influenced how you teach history/social studies. Please rank the most influential impact with a “1,” the second more influential impact with a “2,” and the third most influential impact with a “3.” (Please rank three items only.)

Because of my participation in this project’s professional development...

___: I place more emphasis on historical content in my history/social studies classes.

___: I have created and/or revised lesson, project, and/or activities.

___: I place more emphasis on developing my students’ skills (e.g., research skills, historical thinking, making an argument, reading comprehension, writing skills, etc.)

___: I am able to provide more rich and in-depth coverage of historical content

___: I place more emphasis on presenting different interpretations, or multiple perspectives, of historical content

___: I have re-organized and/or revised unit.

___: I have re-organized and/or revised a course.

___: I have revised and/or have used new pedagogical strategies

___: I am more aware of what the teachers in partner district(s) are doing in their classrooms.

___: I have a better understanding of how to more effectively teach history/social studies to ELL and/or special education students.

___: I share ideas, materials, resources, etc. with teachers from different departments and/or schools.

___: Other (please specify):

APPENDIX G
OBSERVATION PROTOCOL

American Dreams Teaching American History Project
Academic Year 2010-2011
Classroom Observation Protocol

Observer: _____

Date: _____

Time: From _____ **To** _____

Course: _____

Observation Number: _____

Supervising a Student Teacher: _____ Yes _____ No

Describe the content of the lesson and what the lesson integrated from the ADP (if possible, briefly discuss the lesson that came before and lesson that will come after the one observed)

--

<ul style="list-style-type: none"> • Integration of content and skills (e.g., how are different materials/resources used to impart skills and how are teachers prompting students). <ul style="list-style-type: none"> ○ General notes, examples, of how teachers' philosophy of history is enacted in the class (e.g., content driven; skill driven; content and skill driven; inquiry-based vs. traditional approaches) 	<ul style="list-style-type: none"> • Behavior towards of students with different ability levels or from different ethnic backgrounds during the lesson. <ul style="list-style-type: none"> ○ General notes about ways in which teacher approaches students with diverse backgrounds. ○ Multiple perspectives (make note of whether this is done to connect w/students' cultural backgrounds, or if this is done for other reasons)
<ul style="list-style-type: none"> • How content introduced (e.g., thematically/chronologically) <ul style="list-style-type: none"> ○ What is the context the lesson is set within ○ What theme is being used, if applicable ○ What era is being taught 	<ul style="list-style-type: none"> • Differentiated instruction strategies used during the lesson. Potential methods include, but are not limited to, the following: <ul style="list-style-type: none"> ○ Materials/resources used to help differentiate instruction (e.g., primary sources, textbook) ○ Teaching methods to facilitate differentiated instruction (e.g., group work) ○ Strategies for ELL students (e.g., teaching academic language, multiple presentations of material, sufficient time to process new learning).
<ul style="list-style-type: none"> • Curricular articulation skills focused on during the lesson, if any. <ul style="list-style-type: none"> ○ Reading comprehension (e.g., pre-reading, during reading, and post-reading strategies) ○ Note-taking ○ Developing a thesis ○ Research skills ○ Detecting bias ○ Global awareness 	<ul style="list-style-type: none"> • Form of assessment, used during the lesson. Potential examples include, but are not limited to the following: <ul style="list-style-type: none"> ○ Informal (e.g., asking questions throughout the lesson, if doing group do students provide work or report to teacher, exit tickets) ○ Formal assessments (e.g., essay, multiple choice quiz)
<ul style="list-style-type: none"> • Types of materials and resources used during the lesson. <ul style="list-style-type: none"> ○ Textbook 	<ul style="list-style-type: none"> • Examples of inquiry-based teaching practices used during the lesson. <ul style="list-style-type: none"> ○ Structured inquiry (i.e., student given research question or

<ul style="list-style-type: none"> ○ Secondary sources, other than the textbook ○ Primary sources (How used, e.g., illustration, analysis) ○ Historical collections ○ Worksheets 	<ul style="list-style-type: none"> ○ direction, a method, and materials, but are not given expected outcomes) ○ Guided inquiry (i.e., students given a research question or direction, but need to determine the methods)
<ul style="list-style-type: none"> ○ Video/DVD ○ Literature 	<ul style="list-style-type: none"> ○ Open inquiry (i.e., students determine the research question, methods and resources)
<ul style="list-style-type: none"> ● Types of teaching methods used during the lesson. <ul style="list-style-type: none"> ○ Lecture ○ Secondary a/o primary source analysis (teacher-centered, student-centered) ○ Group work ○ Role play, debates ○ Student-led presentations, discussions ○ Teacher-led discussions 	<ul style="list-style-type: none"> ● Student response to the lesson. <ul style="list-style-type: none"> ○ Listened (differentiate between active and passive listening; actively engaged; do students provide opinions about what they heard) ○ Answered questions orally/in writing ○ Posed questions ○ Made predictions ○ Presented information
<ul style="list-style-type: none"> ● Different types of pedagogical strategies used during the lesson. <ul style="list-style-type: none"> ○ Overarching questions, Essential Questions ○ Make note of other pedagogical strategies used, beyond those listed. 	<ul style="list-style-type: none"> ● Students level of engagement in the lesson (see above with “Listened” category)

Descriptions of the Observed Lesson

APPENDIX H
FINAL INTERVIEW PROTOCOL

Final Interview Protocol

Views of Teaching Content and Skills

1. In the first round of interviews, we found that all teachers talked about teaching skills and content. From our initial interview, it appears your view of skills and content is:
[For each teacher, summarize what we learned from the initial interview and observations to double check our interpretations. Provide teachers the opportunity to elaborate or enhance this summary.]
 - a. In what ways, if any, has your participation in the Teaching American History (TAH) professional development influenced your views of skills and content? Has your participation changed your views about content and skills? Has it reinforced your views of skills and content?
 - b. Thinking about the lesson we observed, how typical was the instruction that we saw for your class?
 - c. *Potential probe if teachers do not specify the types of skills:* When you discuss skills, are you focusing on basic skills (e.g., reading and writing), historical thinking skills, or both?
 - d. In what ways, if any, has your master's degree influenced how you teach history?
2. Please briefly describe how you engage your students in source analysis. How often do you have your students engage in source analysis? What types of activities do you do?
3. (For RB, BM, and SA). Nearly two-thirds of teachers who responded to the TAH survey – which as you know was administered late in February/early in March – indicated they organized their teaching of history both thematically and chronologically. Would you describe your organization of history as thematic, chronological, or thematic and chronological?
 - a. [If thematic and chronological] Would you please describe?
 - b. RB – why is thematic a good approach with the focus on skills in your department?

Examples of Approaches to Teaching Content and Skills

4. Can you give other concrete examples from your instruction that we didn't see that illustrates your approach to content and skills in teaching history?

- a. *Potential* probe for SA: As we discussed in Question 1, in our initial interview you indicated the Literacy Liaison Program has given you different ways to teach literacy without giving up content. Could you provide an example of this in practice?
- b. *Potential* probes for RB and BM: Could you provide an example of how you use skills to impart content? RB – what do you mean how to read and write history?
- c. *Potential* probe for PC: As we discussed in Question 1, in our initial interview you indicated that you select the three most important content issues you want your students to learn and then attach a skill to each of these. Could you provide an example of this in practice? How do you decide on content and what skills?

Student Engagement

- 5. Thinking about the lesson(s) we observed and the examples you just provided, in what ways, if any, do you take into account your students (e.g., their abilities, interest, etc.) when planning these lessons? How do your students influence the way you decide to teach these lessons?
 - a. Thinking about the lesson we observed and examples you just provided, what do you think about your students' abilities to meet these goals?
 - i. In what ways do you modify these lessons to meet the needs of students' with different ability levels?
- 6. In the first round of interviews, we found all teachers talked about making history relevant to their students. What do you do to make history relevant to your students?
 - a. Have you ever demonstrated how historical events relate to community and/or family issues that may be relevant to students' lives? Can you provide an example?
 - b. Have you ever demonstrated how historical events relate to students' cultural background? Can you provide an example?

Integration of TAH in Instruction

- 7. In our initial interview, you mentioned that you have integrated from TAH...*[For each teacher, summarize what we learned from the initial interview and observations to double check our interpretations. Provide teachers the opportunity to elaborate or enhance this summary from the initial interview.]*

- a. Have you integrated any else from TAH since we last spoke, or plan on integrating something next year? If so, could you describe this?
 - b. Why did you decide to integrate these elements of TAH into your teaching? (RB – why use Drake strategy?)
 - c. Thinking back to the TAH PD that you participated in (*show teachers a list of their PD to job their memories*), which of these PD events did you NOT find applicable or useful to your teaching? Why?
 - d. *Clarify and/or summarize the following question with teachers, who more than likely indirectly answered it during the of the interview:* How has your participation in TAH PD most influenced the ways you teach U.S. History in your classes?
8. What was most helpful to you in our efforts to integrate what you have learned through TAH PD? What obstacles did you encounter when trying to integrate what you have learned from TAH into your classroom?

Other issues

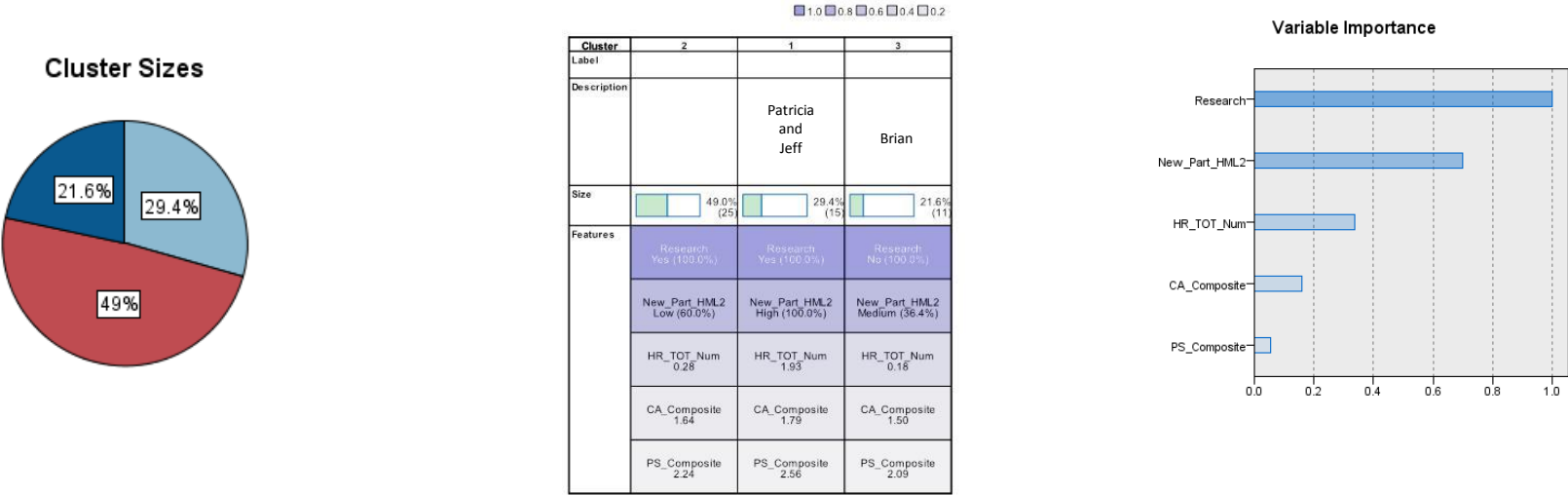
9. [For Brian] In our initial interview you mentioned your department has moved towards common assessments. (*Summarize what we learned from the initial interview to double check our interpretations. Provide opportunity for teacher to elaborate or enhance summary*). Thinking about your teaching of history so far this year, in what ways have these common assessments influence what and how you teach your history courses? (*Probe: clarify the primary objective of the common assessments – content driven or skill driven?*)
- a. [For MB, RB, and PC] In light of the recent revisions to the writing and research assessments used at the Maine schools, how have these revisions influenced how you prepare your students for these assessments?
 - b. [For MB] How did the revised writing prompt revised how you teach the American Revolution era? Was the utilization of a more inquiry-based prompt making it necessary to engage in inquiry-based assignments earlier?
10. What changes to your teaching practices would you like to make in the future? Why? If you did not have any constraints, what would you do or what would you change in your classrooms?

APPENDIX I

DATA REDUCTION PRODUCTS: CASE ORIENTED ANALYSIS

Cluster Analysis Results: Three Cluster Solution

A cluster analysis was performed that included questions related to research projects (Research), levels of participation in ADP (New_Part_HMLS2), implementation of curricular articulation skills (CA_Composite), total number of area historical resources used (HR_TOT_Num), and implementation of primary source analysis (PS_Composite). This analysis suggests that TAH high school teachers can be classified into three distinct groups, or clusters, that account for suggests that ADP high schools teachers can be classified into two clusters, or groups, that account for 51 teachers out of the 60 teachers. The most important variables in distinguishing, or forming, the two groups is the implementation of a research project and levels of participation. Use of historical resources and imparting skills (curricular articulation and primary source analysis) were not as important in distinguishing, or forming, these three groups of teachers.



Cluster One Teachers (n=15)

The most distinguishable elements of this cluster are that it consists of only high participators, these teachers used more area historical resources than other clusters, have students do historical research projects, and are more likely than other clusters to have students participate in historical fair. Cluster One teachers appear to have a strong foundation on U.S. History -- they are likely to have majored in U.S. History and have a master's degree in either in U.S. History or a non-U.S. History area. At the time of this survey, many of these teachers were currently teaching a U.S. History course; although some were not currently teaching U.S. History and a handful were teaching SPED, ELL, or transitional classes. Cluster One teachers have fairly positive perceptions of their students' abilities. These teachers appear to place more emphasis on developing historical thinking skills in comparison to other clusters, in particular Cluster Three. They more frequently engage in source analysis and curricular articulation skills, utilize more area historical resources, and are more likely to have their students participate in history fair compared to teachers in other clusters. In addition, they are more likely to emphasis content first then skills and they are more likely to organize both thematically and chronologically compared to other clusters.

While these 15 teachers come from a variety of high schools, they are mainly from Township High Schools (93%). Many of these teachers are likely to have majored in U.S. History (60%). Although they are more likely to have a non-USH MA (47%), they are also likely to have a MA in USH (33%). At the time of the survey, these teachers taught a variety of courses, but were likely to be currently teaching U.S. History courses (53%); however, some were not currently teaching U.S. History (27%) and a handful were teaching SPED, ELL, or transitional classes (20%).

Cluster One teachers feel their primary goals as social studies teachers are to impart historical thinking skills (71%) and content (43%). For many of these teachers, the primary objective of their last lesson was to impart content first then skills (79%). On average, these teachers utilize primary and secondary source analysis on a weekly basis, routinely implement curricular articulation skills in their classes, and integrate two area historical resources into their classrooms. All of these teachers implement a historical research project in their classes. More teachers in this cluster, compared to other clusters, have had some or all of their students participate in the history fair (33%). These teachers are likely to organize their courses thematically and chronologically (85%).

These teachers primarily make history relevant to students by discussing ways historical events relate to current events, community, or family issues relevant to students (79%). In general, these teachers appear to have fairly positive views about their students, generally agreeing that their students have the ability to go to college and meet their expectations and students are interested in learning and try to learn (mean of 2.65).

These teachers, on average, collaborate with their colleagues a few times a semester (mean of 2.4). They appear more likely to collaborate with colleagues on a monthly basis to discuss what helps students learn (mean of 2.6), to share lessons plans and/or units (mean of 2.6), and to discuss how well strategies/lessons/resources worked (mean of 2.5). A few times during the semester Cluster One teachers collaborate on what they learned in PD (mean of 2.4), discuss how to assess student learning (2.4), work together to create new lesson plans/units based upon PD (1.9), and provide each other feedback (1.9).

All of Cluster One teachers are high participators. They participated across all three years of the grant. The majority of them participated in three or more study groups (57%), three or more seminars (64%), and at least two summer institutes (60%).

While participation in ADP appears to have influenced these teachers' practice in a variety of ways, it seems TAH was most influential with regards to placing more emphasis on developing skills (57%), placing more emphasis on multiple perspectives (50%), revising lessons/projects/activities (43%), imparting more in-depth and rich content (43%), and revising/re-organizing a unit (36%). Among the Cluster One teachers from Maine Township School District, changes to performance assessments prompted them to focus more thesis development (57%), on writing skills (50%), research skills (50%), and source analysis (50%).

Cluster Two Teachers (n=25)

The most distinguishable elements of this cluster are that it represents nearly one-half of TAH high schools teachers, consists of low and medium participators, and these teachers have students do historical research projects. These teachers do not appear to have as strong of a foundation in U.S. History compared to Cluster One teachers, with higher percentages of teachers with non-U.S. History undergraduate degrees and non-U.S. History master's degrees compared to Cluster One. These teachers, unlike other clusters, teach a variety of courses. Similar to Cluster One, these teachers have fairly positive perceptions of their students' abilities. While these teachers are likely to organize their classes both thematically and chronologically, a few also organize courses purely thematically. In comparison to Cluster One teachers, it appears Cluster Two teachers emphasize historical thinking skills slightly less, are less likely to have students participate in history fair, and integrate fewer area historical resources in their classrooms.

Cluster Two teachers present nearly one-half (49%) of the TAH high school teachers in the cluster analysis. While these 25 teachers come from a variety of high schools, they are mainly from the Maine Township high schools (84%). Cluster Two teachers are equally likely to have majored in U.S. History or in a non-U.S. History subject area (48% and 52% respectively),

but are more likely to have a non-U.S. History master's degree (67%). At the time of the survey, these teachers taught a variety of different classes, with no particular type of course (i.e., U.S. History, SPED/ELL/transitional or no U.S. History) dominating what they taught.

Cluster Two teachers feel their primary goals as social studies teachers are to impart historical thinking skills (67%), content (50%), and literacy skills (44%). For many of these teachers, the primary objective of their last lesson was either to emphasize content first then skills (36%) or skills first then content (41%). On average, these teachers utilize secondary source analysis on a weekly basis and primary sources analysis on a monthly basis. These teachers, in general, routinely implement curricular articulation skills in their classes and integrate less than one area historical resource into their classrooms. All of these teachers implement a historical research project in their classes. Only one Cluster Two teacher had some of their students participate in history fair and served as a judge. They are likely to organize their courses thematically and chronologically (59%), with a few teachers organizing purely thematically (23%).

These teachers primarily make history relevant to students by discussing ways historical events relate to current events, community, or family issues relevant to students (77%). In general, these teachers appear to have fairly positive views about their students, generally agreeing their students have the ability to go to college and meet their expectations and students are interested in learning and try to learn (mean of 2.67).

These teachers, on average, collaborate with their colleagues a few times a semester (mean of 2.2). They appear more likely to collaborate with colleagues on a monthly basis to discuss what helps students learn (mean of 2.6), to share lessons plans and/or units (mean of 2.6), to discuss how well strategies/lessons/resources worked (mean of 2.5), and to discuss how to assess student learning (mean of 2.5). A few times during the semester Cluster Two teachers

collaborate on what they learned in PD (mean of 2.1), work together to create new lesson plans/units based upon PD (mean of 2.1), and provide each other feedback (mean of 1.3).

These teachers are a combination of low (60%) and medium (40%) participators. They participated across all three years of the grant. The majority of them participated in one to two study groups (56%), one to two seminars (50%) or 3 or more seminars (46%), and no summer institutes (56%). While participation in ADP appears to have influenced teaching practices in a variety of ways, it seems TAH was most influential with regards to revising lessons/projects/activities (60%), providing more in-depth and rich content (50%), placing more emphasis on multiple perspectives (50%), placing more emphasizing on development skills (40%), and revising or re-organizing a unit (40%). Among the Cluster Two teachers from Maine Township School District, changes to performance assessments prompted them to spend more time on thesis development (47%), on writing skills (33%), and on research skills (38%).

Cluster Three Teachers (n=11)

The most distinguishable elements of this cluster are that it consists of a mixture of low, medium, and high participators; none of these teachers implement a historical research projects, and these teachers use the fewest area historical resources. In comparison to the other clusters, Cluster Three teachers appear to have the weakest foundation in U.S. History, having the highest percentage of teachers who did not major in U.S. History and having the highest percentage of teachers with a non-U.S. History master's degree. Many of these teachers were not currently teaching a U.S. History course at the time of the survey. Unlike other clusters, the majority of these teachers were not currently teaching U.S. History at the time of the survey. Cluster Three teachers do not appear to place a strong an emphasis on imparting content, making seem more skills-focused than other teachers; however, these teachers do not emphasize historical thinking skills as strongly as the other clusters of teachers. Cluster Three teachers do not engage

students in research projects, engage students in primary and secondary source analysis less frequently, and implement curricular articulation skills less frequently compared to other teachers. These teachers are more likely to organize courses chronologically. They also have more ambivalent views about their students' abilities compared to the other clusters of teachers. In comparison to the other clusters, Cluster Three teachers collaborate more often with their colleagues, particularly with regards to students.

While these 11 teachers come from a variety of high schools, none of them are from Maine South High School and a higher percentage of these teachers are from the Leyden high schools compared to the other clusters. Many of the Cluster Three teachers did not major in U.S. History (63%), and are likely to have a non-U.S. History master's degree (82%). At the time of the survey, the majority of these teachers were not currently teaching a U.S. History course (60%).

Cluster Three teachers feel their primary goals as social studies teachers are to impart historical thinking skills (67%) and literacy skills (67%). For many of these teachers, the primary objective of their last lesson was either to emphasize skills only (50%), while a few focused on imparting content first then skills (38%). On average, these teachers utilize secondary source and primary sources analysis on a monthly basis. In general, these teachers routinely implement curricular articulation skills in their classes and integrate less than one area historical resource into their classrooms. None of these teachers implement a historical research project in their classes. These teachers are likely to organize their courses chronologically (50%), with a few organizing both thematically and chronologically (38%).

These teachers primarily make history relevant to students by discussing ways historical events relate to current events, community, or family issues relevant to students (63%). These teachers, in general, appear to have ambivalent feelings about their students' ability to go to college, their

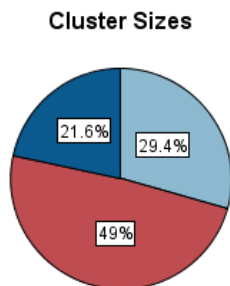
attempts to try to learn, their interest in learning, and their ability to meet or exceed teachers' expectations (mean of 2.2).

These teachers, on average, collaborate with their colleagues on a monthly basis (mean of 2.6). They appear more likely to collaborate with colleagues on a monthly basis to discuss what helps students learn (mean of 3.3), how to assess student learning (3.1), how well strategies/lessons/resources worked (mean of 3.1), and to share lessons plans or units (mean of 2.9). A few times during the semester Cluster Three teachers collaborate on what they learned in PD (mean of 2.1), work together to create new lesson plans/units based upon PD (mean of 2.0), and provide each other feedback (mean of 1.4). In comparison to other groups, these Cluster 3 teachers appear to collaborate more with one another.

These teachers were a mixture of high (27%), medium (36%), and low (36%) participators. They participated across all three years of the grant, but are more likely to have participated in the third year of TAH (82%). The majority of them participated in one to two study groups (78%), one to two seminars (67%), and participated in a range of summer institutes (from none to three). While participation in ADP appears to have influenced these teachers' practices in a variety of ways, it seems TAH was most influential with regards to revising lessons/projects/activities (50%), providing more in-depth and rich content (50%), and placing more emphasis on multiple perspectives (50%). Among the Cluster Three teachers from Maine Township School District, changes to performance assessments prompted them to focus spending more time on thesis development (38%), on reading skills (38%), and on source analysis (38%) – only one teacher chose to focus more on developing research skills.

Cluster Analysis Results: Three Cluster Solution

A cluster analysis was performed that included questions related to research projects (Research), levels of participation in TAH (New_Part_HMLS2), implementation of curricular articulation skills (CA_Composite), total number of area historical resources used (HR_TOT_Num), and implementation of primary source analysis (PS_Composite). This analysis suggests that TAH high school teachers can be classified into three distinct groups, or clusters, that account for suggests that TAH high schools teachers can be classified into two clusters, or groups, that account for 51 teachers out of the 60 teachers. The most important variables in distinguishing, or forming, the two groups are the implementation of a research project and levels of participation. Use of historical resources and imparting skills (curricular articulation and primary source analysis) were not as important in distinguishing, or forming, these three groups of teachers.



Feature Importance
1.0 0.8 0.6 0.4 0.2

Cluster	2	1	3
Label		Patricia Jeff James	Brian
Description			
Size	49.0% (25)	29.4% (15)	21.6% (11)
Features	Research Yes (100.0%)	Research Yes (100.0%)	Research No (100.0%)
	New_Part_HML2 Low (60.0%)	New_Part_HML2 High (100.0%)	New_Part_HML2 Medium (36.4%)
	HR_TOT_Num 0.28	HR_TOT_Num 1.93	HR_TOT_Num 0.18
	CA_Composite 1.64	CA_Composite 1.79	CA_Composite 1.50
	PS_Composite 2.24	PS_Composite 2.56	PS_Composite 2.09

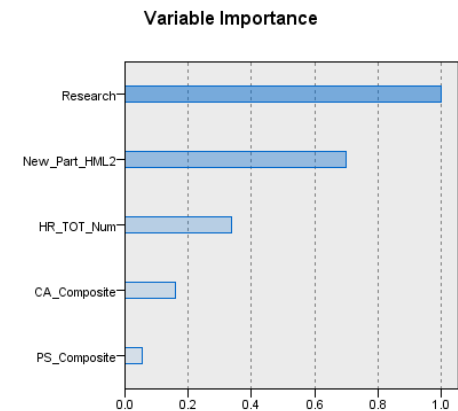


Table 4. The Descriptive Statistics of Survey Items Regarding Background Characteristics and Teaching Practices from the Cluster Analysis (n = 51) of Teachers Participating in the American Dreams Project.

Case Study Teachers	Cluster 1: Teachers with High Engagement in ADP (n = 15)		Cluster 2: Teachers with Low Engagement in ADP (n =25)		Cluster 3: Teachers in More Restrictive School Settings (n = 11)	
	Patricia, Jeff, James				Brian	
	N	%	N	%	N	%
Survey Question						
High School						
Southside	5	33	4	16	0	0
Westside	6	40	8	32	4	36
Eastside	3	20	9	36	4	36
Northside	1	7	4	16	3	27
Department						
Social studies	12	92	17	73	9	56
Special education	1	7	3	13	4	36
English as a second language	0	0	3	13	1	9
Participation in ADP						
High	15	100	0	0	3	27
Medium	0	0	10	40	4	36
Low	0	0	15	60	4	36
Undergraduate major in history?	9	60	12	48	4	36
Master's degree						
U.S. History	5	33	8	33	2	18
Non-U.S. History	7	47	16	67	9	82

None	3	20	0	0	0	0
Students complete a research project?						
Yes	15	100	25	100	0	0
Included thesis	15	100	20	80	0	0
Included secondary source analysis	14	93	24	96	0	0
Included primary source analysis	14	93	22	88	0	0
Participated in History Fair?	5	33	1	4	0	0
Making history relevant to students						
Select topics, projects, etc. based on interest	1	7	1	5	1	13
Relevance to current events, community, and/or family issues	11	79	17	77	5	63
Connections to students' cultural backgrounds	1	7	3	13	2	25
Relate to pop culture	1	7	1	5	0	0
	M	SD	M	SD	M	SD
Number of historical resources utilized?	1.93		0.28		0.18	
Primary source analysis (0=rarely, 4=daily)						
Illustrations for material covered in class	2.87	0.74	2.63	1.06	2.64	1.03
Content-area reading activity	2.80	0.77	2.71	1.04	2.64	1.12
Individual student analysis	2.79	0.70	2.40	1.04	1.91	1.22
Small group analysis	2.67	0.62	2.13	1.10	2.55	0.82
Research projects/papers	1.73	0.96	1.22	0.67	0.73	0.65
Curriculum Articulation Goals (0=rarely, 2=routinely)						
Basic reading skills	1.93	0.26	1.96	0.20	1.82	0.60
Reading and analyzing sources	1.93	0.26	1.96	0.20	1.64	0.50
Note-taking	1.93	0.26	1.80	0.41	1.64	0.50
Developing a thesis	1.87	0.35	1.52	0.59	1.36	0.50
Research skills	1.47	0.52	1.20	0.50	1.27	0.65
Detecting bias	1.60	0.63	1.35	0.57	1.20	0.63

Perceptions of students (0=strongly disagree, 4=strongly agree)						
Most students capable of going to college	2.92	0.76	2.67	1.02	2.14	1.21
Most students try to learn	2.62	0.77	2.62	0.74	2.14	0.69
Most students meet my expectations	2.62	0.65	2.67	0.66	2.29	0.76
Most students are interested in learning	2.46	0.78	2.71	0.85	2.14	0.90
Primary objective of last lesson						
Impart content only	0	0	3	13	1	13
Primary objective of last lesson						
Impart skills only	0	0	2	9	4	50
Impart content then skills	11	79	8	36	3	38
Impart skills then content	3	21	9	41	0	0
Organization of social studies courses						
Thematically	0	0	5	23	1	13
Chronologically	2	15	4	18	4	50
Thematically and chronologically	11	85	13	59	3	38
Primary goals of teaching social studies						
Imparting literacy skills	4	29	8	44	4	67
Imparting historical thinking skills	10	71	12	67	4	67
Impart research skills	4	29	3	17	0	0
Impart historical content	6	43	9	50	2	33
Changes to Maine performance assessments						
More time on thesis development	8	57	10	48	3	38
More time on writing skills	7	50	7	33	2	25
More time on research skills	7	50	8	38	1	13
More time on basic reading skills	5	36	4	19	3	38
More time on source analysis	7	50	6	29	3	38
Prepare the same	3	21	4	19	0	0

Survey Question	M	SD	M	SD	M	SD
Collaboration (0=rarely, 4=daily)						
Discuss what helps students learn	2.64	1.34	2.55	1.18	3.29	0.76
Share lesson plans/units	2.57	1.40	2.55	1.30	2.86	1.57
Sharing what learned in PD	2.36	1.55	2.05	1.09	2.14	1.21
Discuss how strategies, lessons, resources worked	2.54	1.45	2.45	1.14	3.14	0.90
Provide feedback to colleagues	1.93	1.54	1.32	1.39	1.43	1.62
Work together to create new less based on PD	1.93	1.49	2.09	1.11	2.00	1.41
Discuss how to assess content and skills	2.43	1.45	2.45	1.10	3.14	0.90
	N	%	N	%	N	%
Created and/or revised lessons, projects, and/or activities	6	40	12	48	3	27
Reorganized and/or revised a unit	5	33	8	32	1	9
Reorganized and/or revised a course	3	20	5	20	0	0
Place more emphasis on presenting different interpretations, or multiple perspectives, of historical content.	7	47	10	40	3	27
Able to provide more rich and in-depth coverage of historical content	6	40	10	40	3	27
Place more emphasis on historical content in history/social studies classes	2	13	3	12	2	18
Place more emphasis on developing students' skills (e.g., research skills, historical thinking, making an argument, reading comprehension, writing skills, etc.)	8	53	8	32	2	18
Revised and/or used new pedagogical strategies	3	20	2	8	0	0
Better understanding of how to teach history/social studies to ELL and/or special education students	4	27	4	16	2	18
Share ideas, materials, resources, etc. with teachers from different departments and/or schools	3	20	2	8	2	18

More aware of what the teachers in partner district(s) are doing in their classrooms.
--

2

13

4

16

0

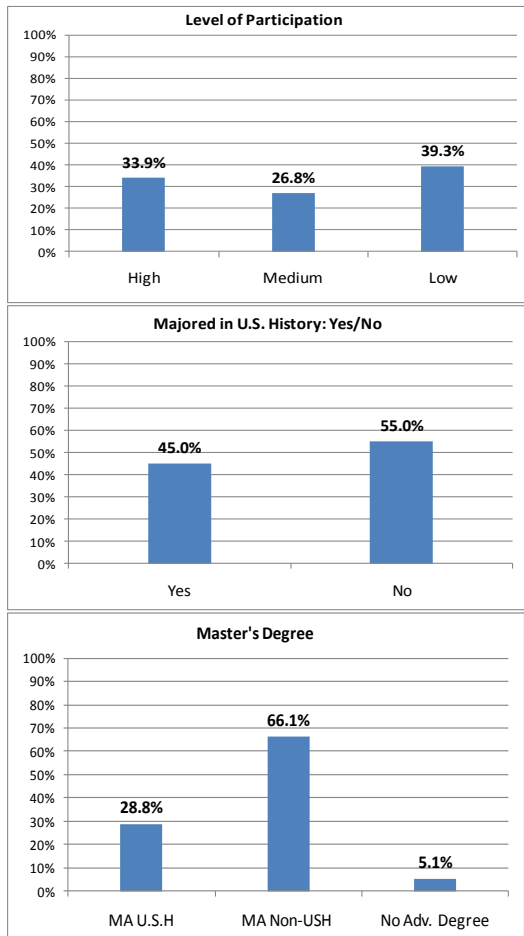
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APPENDIX J

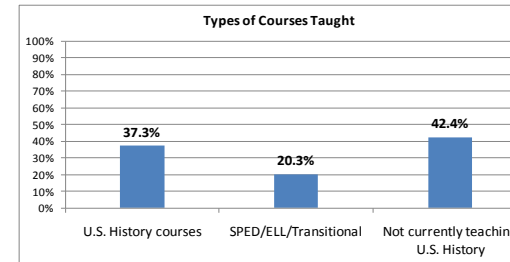
DATA REDUCTION PRODUCTS: VARIABLE ORIENTED ANALYSIS

Figure 8. Comparison of Survey and Case Study Data: Demographic Characteristics.

SURVEY



SURVEY DATA CONTINUED



CASE STUDY DATA

Levels of Participation

High: n=2 (Patricia & Jeff)

Medium: n=1 (Brian)

Major

USH: n=2 (Patricia & Brian)

Non-USH: 1 (Jeff)

Masters

USH: n=2 (note Patricia in process of MA; Jeff)

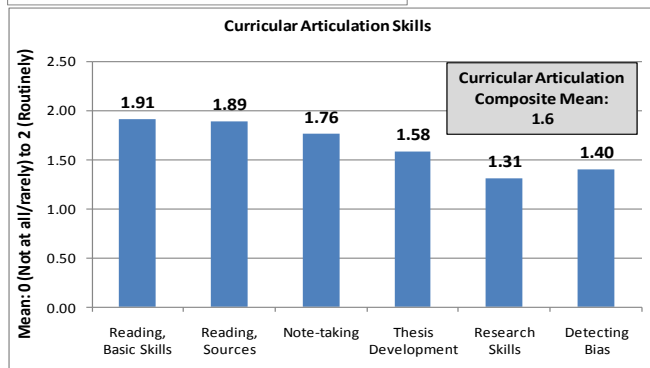
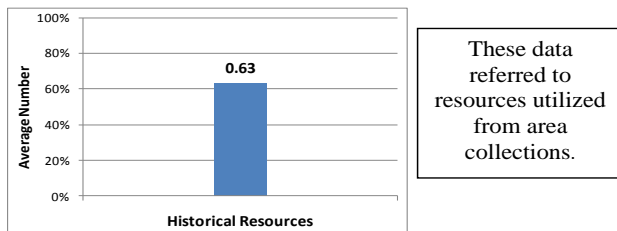
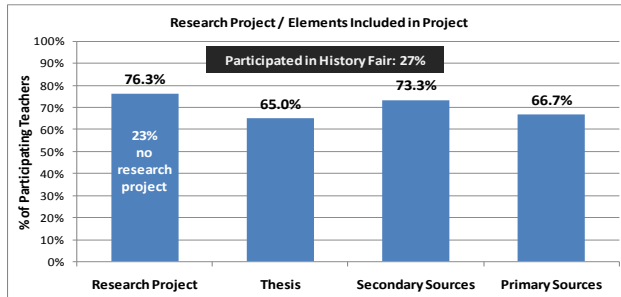
Non-USH: n=1 (Brian)

Types of Courses Taught

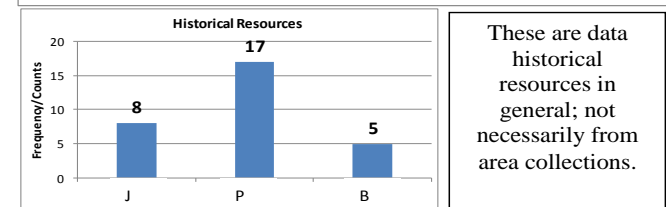
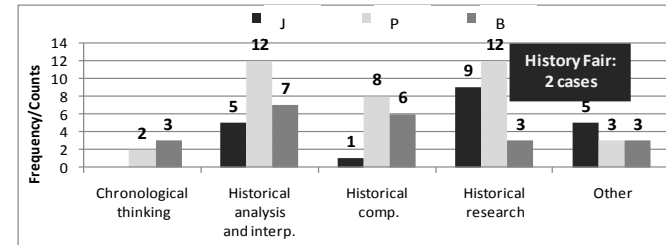
USH: n=3

Figure 9. Comparison of Survey and Case Study Data: Historical Thinking Skills.

SURVEY



CASE STUDY



Developing literacy skills in this context refers to a broad range of skills and strategies to develop these skills -- not just limited to basic reading and note-taking of curricular articulation.

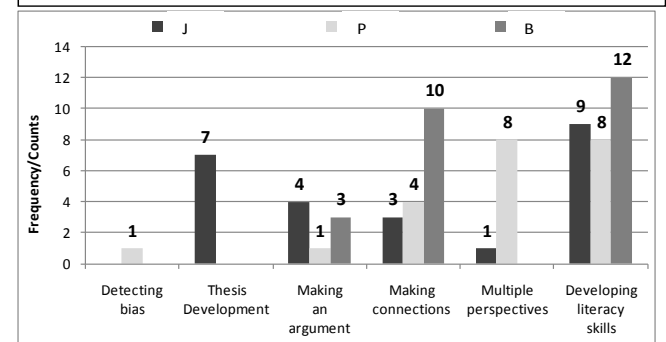
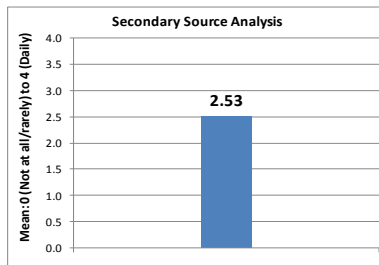
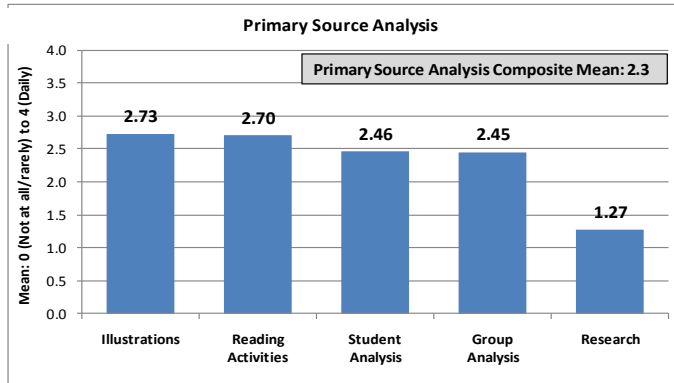


Figure 10. Comparison of Survey and Case Study Data: Source Analysis.

SURVEY



CASE STUDY

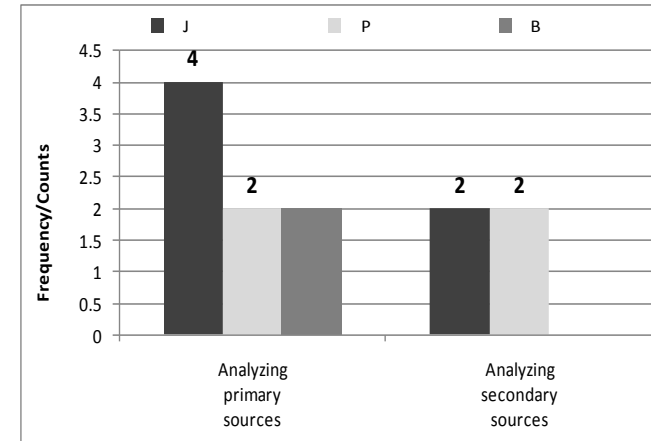
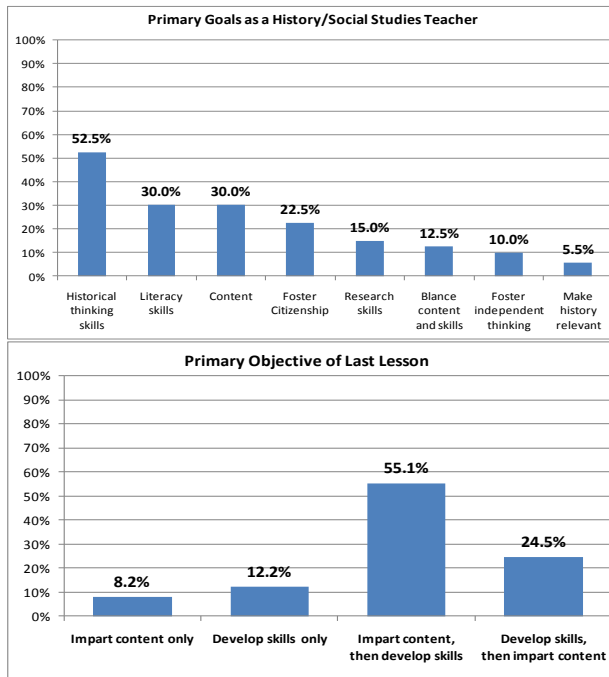
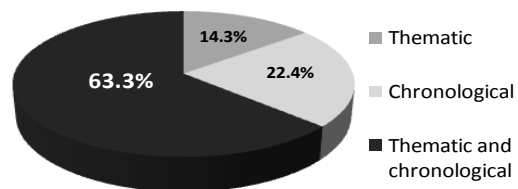


Figure 11. Comparison of Survey and Case Study Data: Goals of Teaching History/Social Studies.

SURVEY



40 out of 60 HS teachers answered this question. It appears that low participators, WSHS teachers, and teachers not currently teaching USH were the most common type of missing respondents.



CASE STUDY

The chart below demonstrates contradictions in statements made by teachers. Sometimes they demonstrate or state they balance content and skills, while other times they say the priority skills over content. It may be best to refer to the case study narrative summaries to get a better idea of the complexity of teachers' philosophies towards teaching U.S. History.

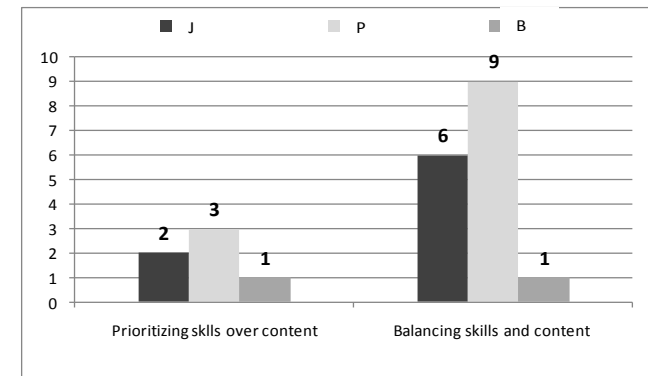
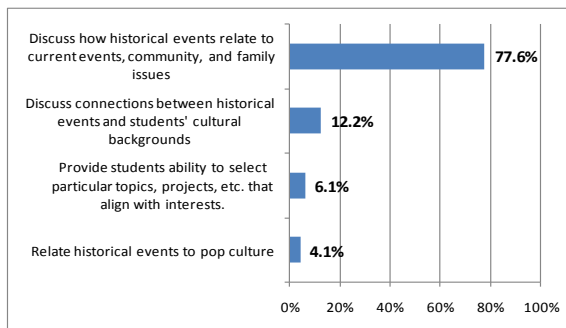
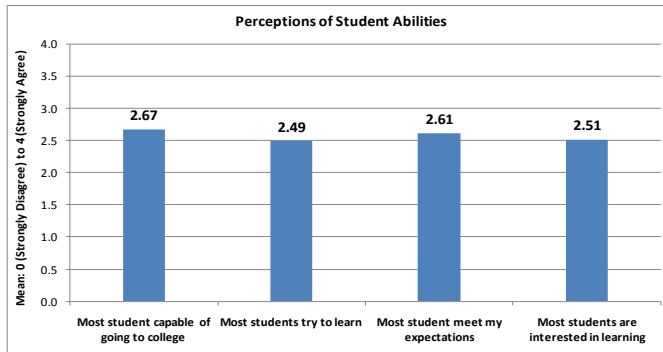
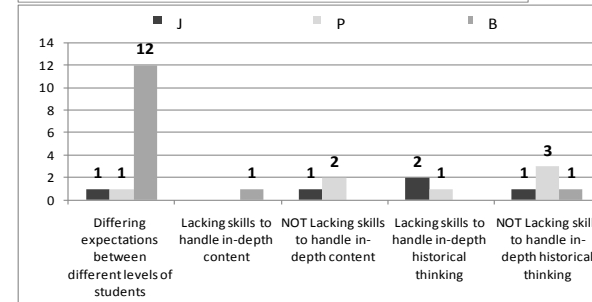
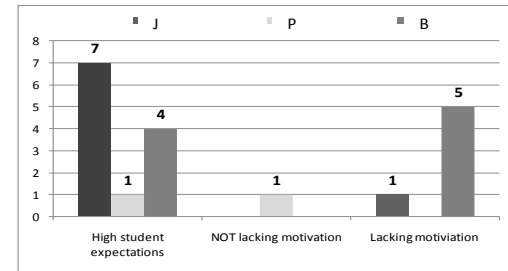


Figure 12. Comparison of Survey and Case Study Data: Perceptions of Student Abilities.

SURVEY



CASE STUDY DATA



Brian's counts may be slightly over-inflated due to multiple responses; however, the general trends seen for Brian hold.

These codes are those under the Ambitious Teaching One only as the survey question dealt more with Ambitious Teaching One than Two. May be inflated due to multiple responses.

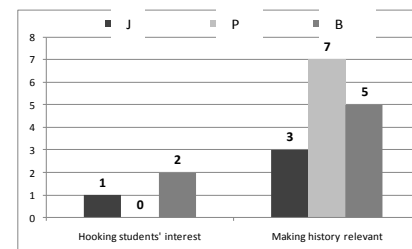
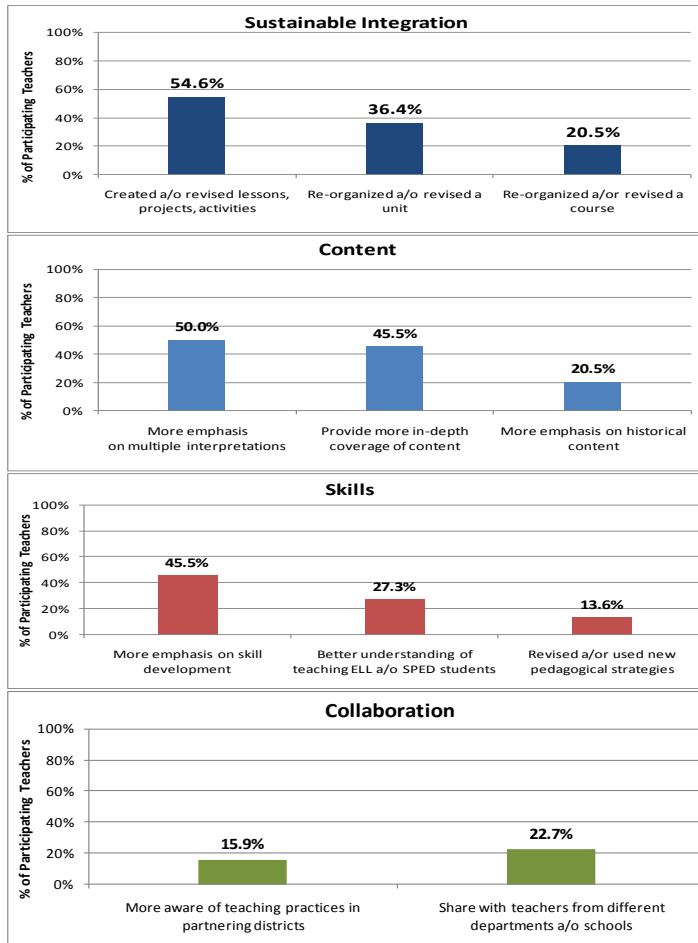


Figure 13. Comparison of Survey and Case Study Data: Influence of the American Dreams Project.

SURVEY



CASE STUDY DATA

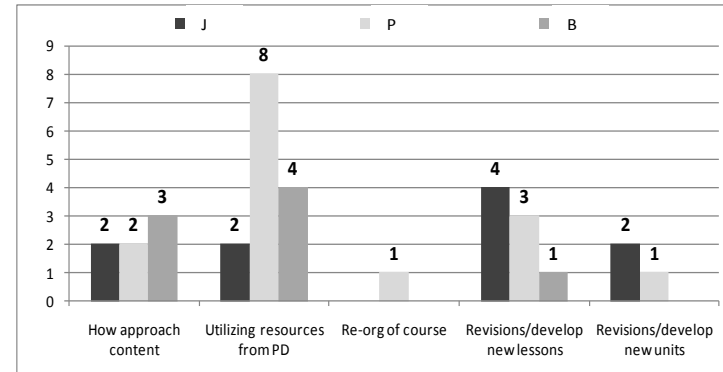
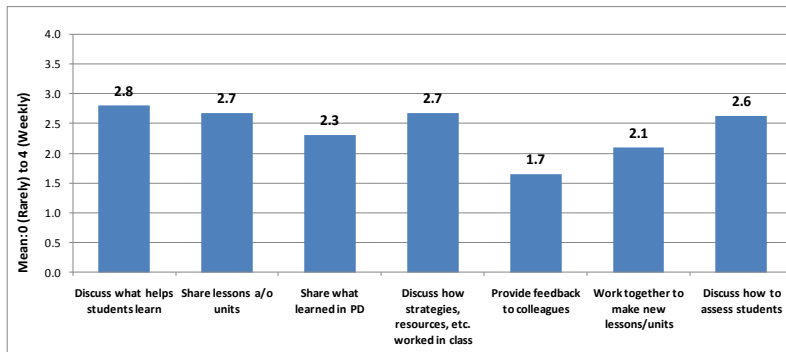


Figure 14. Comparison of Survey and Case Study Data: Collaboration Among Teachers.

SURVEY



CASE STUDY DATA

Case study data did not reveal particularly meaningful information about collaboration in Brian, Patricia, and Jeff's schools. In general, there seems to be more of a spirit of collaboration in Patricia's school, less so at Jeff's school, and even less so at Brian's school. Patricia and Jeff's schools allow teachers a lot of freedom to innovate, while SA's school has a more restrictive environment.

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While at Loyola for her Ph.D., Daniela managed both graduate school and a full time job in market research. During her last three years at Loyola, Daniela also worked closely with School of Education faculty on a variety of evaluation projects in the field of education.

Currently, Daniela is an internal program evaluator at a nonprofit organization that works with high school students in Chicago Public School district, providing schools and students postsecondary support, Restorative Justice services, and social-emotional learning programming.